ALEKS® Mathematics - LV 6

ARITH124: *Whole number place value: Problem type 1.*

Give the digits in the thousands place and the ones place.

5,092

thousands:

ones:

ARITH125: *Whole number place value: Problem type 2.*

Give the digits in the hundred thousands place and the ten thousands place.

250,493

hundred thousands: ☐

ten thousands: ☐

ARITH066: *Expanded form.*

Write 3,824 in expanded form.

ARITH643: *Expanded form with zeros.*

Write 3,040,000 in expanded form.

ARITH028: *Numeral translation: Problem type 1.*

Write the number for *seven thousand eighty-five*.

ARITH060: *Numeral translation: Problem type 2.*

Write the number for *two million seven thousand*.

ARITH633: *Single digit addition with carry.*

Add.

$7+7$

ARITH634: *Addition of 3 or 4 single-digit numbers.*

Add.

$8+9+4$

ARITH635: *Adding a 2-digit number and a 1-digit number with carry.*

Add.

$64+7$

ARITH001: *Addition without carry.*

Add.

```
   73
+  14
-------
```

ARITH050: *Addition with carry.*

Add.

```
   37
+  49
-------
```

ARITH630: *Addition with carry to the hundreds place.*

Add.

```
   61
+  69
-------
```

ARITH012: *Addition of large numbers.*

Add.

```
    665
   6472
+    84
─────────
```

ARITH660: *Finding the value of a collection of coins.*

How much money is shown?
Write your answer in cents.

ARITH661: *Finding the value of a collection of bills and coins.*

How much money is shown?
Write your answer in dollars.

ARITH636: *Subtracting a 1-digit number from a 2-digit number.*

Subtract.

$17 - 8$

ARITH007: *Subtraction without borrowing.*

Subtract.

```
  6 8
- 5 4
─────
```

ARITH006: *Subtraction with borrowing.*

Subtract.

```
  7 5
- 5 7
─────
```

ARITH128: *Adding or subtracting 10, 100, or 1000.*

What number is one hundred more than 886?

ARITH682: *Subtraction with multiple regrouping steps.*

Subtract.

```
  4 1 1
-   1 2
───────
```

ARITH637: *Subtraction and regrouping with zeros.*

Subtract.

$8014 - 991$

ARITH613: *Word problem using addition or subtraction.*

Jose has 638 beads and Salma has 205 beads.

How many beads do Jose and Salma have together?

ARITH008: *One-digit multiplication.*

Multiply.

8×5

ARITH679: *Multiplication by 10, 100, and 1000.*

Multiply.

5×100

ARITH675: *Understanding multiplication of a one-digit number with a larger number.*

Use the place values of 47 to fill in the blanks in parentheses.
Then, give the value of 2×47.

    (a) $2 \times 47 \ = \ \left(2 \times \boxed{}\right) + \left(2 \times \boxed{}\right)$

    (b) $2 \times 47 \ = \ \boxed{}$

ARITH003: *Multiplication without carry.*

Multiply.

$$\begin{array}{r} 2\,1 \\ \times \quad 4 \\ \hline \end{array}$$

ARITH004: *Multiplication with carry.*

Multiply.

$$\begin{array}{r} 5\,8 \\ \times \quad 7 \\ \hline \end{array}$$

ARITH615: *Introduction to multiplication of large numbers.*

Multiply.

$$\begin{array}{r} 3\,2 \\ \times \ 1\,3 \\ \hline \end{array}$$

ARITH632: *Multiplication with trailing zeros: Problem type 1.*

Multiply.

700×8

ARITH638: *Multiplication with trailing zeros: Problem type 2.*

Multiply.

$$70 \times 635$$

ARITH014: *Multiplication of large numbers.*

Multiply.

```
    3 3 8
×     3 6
```

ARITH126: *Multiplication as repeated addition.*

Rewrite as a multiplication sentence.

$$5 + 5 + 5 + 5 = 20$$

$$\boxed{} \times \boxed{} = 20$$

ARITH639: *Using multiplication to find the number of squares.*

How many squares are shown below?
Write a multiplication sentence that gives the answer.

■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
■ ■ ■ ■ ■ ■ ■
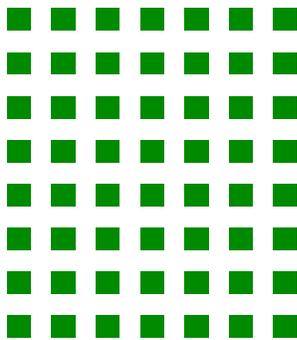
ARITH640: *Using addition and multiplication to count the objects on a grid.*

How many squares are shown below?
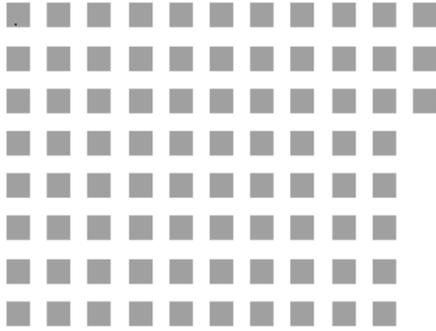
ARITH641: *Multiples: Problem type 1.*

Write the next three multiples of 2 .

4 , ☐ , ☐ , ☐

ARITH642: *Multiples: Problem type 2.*

Write the next three multiples of 9 .

27 , ☐ , ☐ , ☐

ARITH075: *Simple division.*

Divide.

$36 \div 6$

ARITH052: *Division without carry.*

Divide.

$2 \overline{)64}$

ARITH005: *Division with carry.*

Divide.

$3 \overline{)81}$

ARITH680: *Division with trailing zeros: Problem type 1.*

Divide.

$1800 \div 9$

ARITH649: *Division with trailing zeros: Problem type 2.*

Divide.

$5600 \div 70$

ARITH650: *Division involving quotients with intermediate zeros.*

Divide.

$4,586 \div 9$

Quotient: ☐

Remainder: ☐

ARITH616: *Quotient and remainder: Problem type 1.*

Divide. Give the quotient and remainder.

$31 \div 9$

Quotient: ☐

Remainder: ☐

ARITH644: *Word problem on quotient and remainder.*

Jim has 23 game cards. He wants to deal each of 3 players the same number of cards. How many cards will each player get? How many cards will be remaining?

Number of cards each player will get $=$ ☐

Number of cards remaining $=$ ☐

ARITH617: *Quotient and remainder: Problem type 2.*

Divide. Give the quotient and remainder.

$6 \overline{)152}$

ARITH631: *Quotient and remainder: Problem type 3.*

Divide. Give the quotient and remainder.

$$18\overline{)651}$$

ARITH023: *Word problem using division.*

There are 146 basketball fans who plan to go to a game. How many buses will be needed, given that each bus can hold 37 fans?

ARITH614: *Basic word problem using multiplication or division.*

Scott went to a store and bought 5 items. Each item cost the same. He spent $\$20$. How much did each item cost?

ARITH130: *Word problem with multiple operations.*

A small theater had 6 rows of 24 chairs each. Workers just removed 8 of these chairs. How many chairs are left?

ARITH651: *Introduction to inequalities.*

Use $<$, $>$, or $=$ to compare the numbers.

$$67 \;\square\; 67$$
$$89 \;\square\; 86$$
$$572 \;\square\; 13$$
$$250 \;\square\; 993$$

ARITH652: *Comparing a simple numerical expression with a number.*

Complete each number sentence by choosing $>$, $<$, or $=$.

$$56 + 32 \;\square\; 80$$
$$50 \;\square\; 49 - 2$$
$$9 \times 5 \;\square\; 53$$

ARITH077: *Ordering large numbers.*

Order the following numbers from least to greatest.

3,927 174,290 34,805 222,846

ARITH078: *Rounding: Problem type 1.*

Round 318 to the nearest hundred.

ARITH061: *Rounding: Problem type 2.*

Round $381,955$ to the nearest hundred thousand.

ARITH123: *Rounding: Problem type 3.*

Round $8,102$ to the nearest thousand.

ARITH101: *Estimating a sum.*

Estimate $2,546 + 10,703$ by first rounding each number to the nearest thousand.

ARITH102: *Estimating a difference.*

Estimate $35,276 - 17,746$ by first rounding each number to the nearest thousand.

ARITH677: *Estimating a product.*

Pablo and Ann are trying to estimate this product.

9×43

Answer the questions below.

Pablo estimates this product by computing 9×40. What is his estimate?
$9 \times 40 =$
Ann estimates this product by computing 9×50. What is her estimate?
$9 \times 50 =$
Whose estimate is closer to 9×43?

○ Pablo's estimate is closer
    ○ Ann's estimate is closer
    ○ Their estimates are equally close

ARITH678: *Estimating a quotient.*

Answer the following about estimating $656 \div 9$.

(a) Choose the division that gives a better estimate of $656 \div 9$. Then, fill in the estimate.

    ○ $630 \div 9 =$ ☐

    ○ $720 \div 9 =$ ☐

(b) Is the estimate you chose an *underestimate* or an *overestimate*?

    ○ underestimate   ○ overestimate

* ~~ARITH103:~~ *Average of two numbers.*

What is the average of 117 and 59?

ARITH645: *Introduction to parentheses.*

Evaluate $(8 \div 4) + 3$.

ARITH681: *Introduction to order of operations.*

Evaluate $9 + 9 \times 8$.

ARITH048: *Order of operations: Problem type 1.*

Evaluate the following.

$3 + 4 \times 4 + 15 \div 5$

ARITH051: *Order of operations: Problem type 2.*

Evaluate the following expression.

$18 \div [6 \times (18 - 11) - 40]$

ARITH658: *Filling in missing operations to make an equation.*

Fill in the blanks with $+$, $-$, $\times$, or $\div$.

$15 \,\square\, 1 = 8 \,\square\, 2$

$10 \,\square\, 2 = 24 \,\square\, 4$

ARITH646: *Even and odd numbers.*

For each number below, is it even or odd?

.	Odd	Even
745	○	○
24	○	○
380	○	○
62	○	○
41	○	○

ARITH647: *Divisibility rules for 2, 5, and 10.*

Answer the questions below. Be sure to mark *all* answers that apply.

.	161	790	485	None of these
Which numbers are divisible by 10?	☐	☐	☐	☐
Which numbers are divisible by 2?	☐	☐	☐	☐
Which numbers are divisible by 5?	☐	☐	☐	☐

ARITH648: *Divisibility rules for 3 and 9.*

Answer the questions below. Be sure to mark *all* answers that apply.

.	200	387	689	None of these
Which numbers are divisible by 3?	☐	☐	☐	☐
Which numbers are divisible by 9?	☐	☐	☐	☐

ARITH056: *Factors.*

Write all the factors of 27 .
Use commas to separate them.

ARITH034: *Prime numbers.*

Put a check by all the prime numbers.

☐	2
☐	4
☐	5
☐	16
☐	18
☐	27

ARITH035: *Prime number factorization.*

Write 42 as a product of prime factors.

ARITH033: *Greatest common factor.*

Find the greatest common factor of 33 and 35 .

ARITH070: *Least common multiple.*

Find the least common multiple of 3 and 4 .

ARITH240: *Word problem with common multiples.*

Ahmad must choose a number between 67 and 113 that is a multiple of 5 , 8 , and 10 . Write all the numbers that he could choose. If there is more than one number, separate them with commas.

ARITH655: *Introduction to properties of addition.*

Fill in the blanks. Then, choose the property of addition you used.

Fill in the blanks	Choose the property of addition shown
(a) $0 + \boxed{} = 9$	- Associative Property - Commutative Property - Identity Property
(b) $7 + \boxed{} = 6 + 7$	- Associative Property - Commutative Property - Identity Property
(c) $(4 + 3) + \boxed{} = 4 + (3 + 7)$	- Associative Property - Commutative Property - Identity Property

ARITH656: *Introduction to properties of multiplication.*

Fill in the blanks. Then, choose the property of multiplication you used.

Fill in the blanks	Choose the property of multiplication shown

(a) $3 \times 6 = 6 \times \square$	a) Associative b) Commutative c) Identity d) Zero
(b) $\square \times 6 = 6$	a) Associative b) Commutative c) Identity d) Zero
(c) $2 \times (4 \times 9) = (2 \times 4) \times \square$	a) Associative b) Commutative c) Identity d) Zero
(d) $0 \times 8 = \square$	a) Associative b) Commutative c) Identity d) Zero

ARITH657: *Introduction to the distributive property.*

Answer the question below, and then fill in the blanks if necessary.

Can the distributive property be used to rewrite $4 \times (6 - 3)$?

○ Yes   ○ No

If yes, fill in the blanks below.

$4 \times (6 - 3) = (\square \times \square) - (\square \times \square)$

ARITH653: *Fact families for addition and subtraction.*

(a) $\square + \square = \square$

(b) $\square - \square = \square$

Fill in the blanks using only 5 , 8 , and 13 .

ARITH654: *Fact families for multiplication and division.*

Fill in the blanks using only 7 , 8 , and 56 .

(a) $\square \div \square = \square$

(b) $\square \times \square = \square$

ALGE807: *Finding the next terms of a simple sequence.*

The first three terms of a geometric sequence are as follows.

```
64,32,16
```

Find the next two terms of this sequence.

ARITH623: *Introduction to fractions.*

The figure below is cut into 5 equal pieces.
What fraction of the figure is shaded?
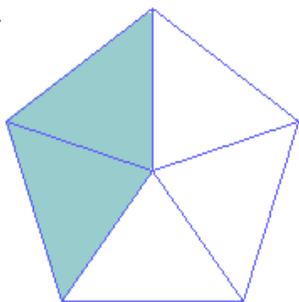
ARITH665: *Understanding equivalent fractions.*

The strip below is cut into 6 equal bars.

Shade $\dfrac{2}{3}$ of this strip.

ARITH212: *Equivalent fractions.*

Fill in the blank to make the two fractions equivalent.

$$\frac{3}{5} = \frac{\square}{20}$$

ARITH666: *Introduction to fractions in simplest form.*

Write $\dfrac{8}{10}$ in simplest form.

ARITH067: *Simplifying a fraction.*

Write the fraction $\dfrac{20}{28}$ in simplest form.

ARITH044: *Ordering fractions with same denominator.*

Order the following fractions from greatest to least.

$$\dfrac{7}{9} \ , \ \dfrac{8}{9} \ , \ \dfrac{6}{9}$$

ARITH091: *Ordering fractions with same numerator.*

Order the following fractions from least to greatest.

$$\dfrac{4}{10} \ , \ \dfrac{4}{5} \ , \ \dfrac{4}{6}$$

ARITH092: *Ordering fractions.*

First, rewrite $\dfrac{17}{25}$ and $\dfrac{7}{10}$ so that they have a common denominator.

Then, use $<$, $=$, or $>$ to order $\dfrac{17}{25}$ and $\dfrac{7}{10}$.

$$\dfrac{17}{25} = \dfrac{\square}{\square} \quad ; \quad \dfrac{7}{10} = \dfrac{\square}{\square}$$

$$\dfrac{17}{25} \ \square \ \dfrac{7}{10}$$

ARITH687: *Fractional position on a number line.*

What is the position of D on the number line below?

Write your answer as a fraction or mixed number.

ARITH667: *Plotting fractions on a number line.*

Plot $\dfrac{7}{8}$ and $1\dfrac{3}{4}$ on the number line below.
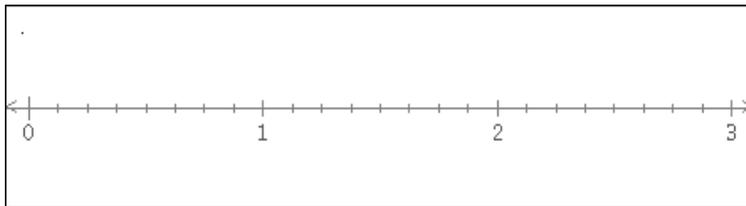
ARITH618: *Addition or subtraction of fractions with the same denominator.*

Subtract.

$$\frac{6}{8} - \frac{1}{8}$$

ARITH109: *Addition and subtraction of simple unit fractions.*

Subtract.

$$\frac{1}{2} - \frac{1}{8}$$

ARITH664: *Introduction to addition or subtraction of fractions with different denominators.*

Subtract.

$$\frac{2}{3} - \frac{1}{5}$$

ARITH230: *Addition or subtraction of fractions with different denominators.*

Add.

$$\frac{5}{12} + \frac{7}{8}$$

Write your answer as a fraction in simplest form.

ARITH100: *Fractional part of a circle.*

How much of the circle is shaded? Write your answer as a fraction in simplest form.
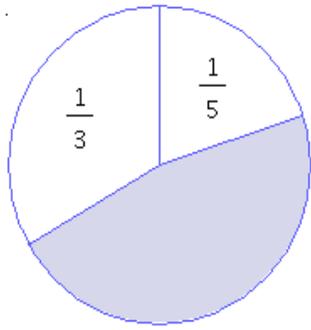
ARITH079: *Product of a unit fraction and a whole number.*

What is $\dfrac{1}{3}$ of 27 ?

ARITH086: *Product of a fraction and a whole number.*

Multiply.

$$\dfrac{2}{7} \times 35$$

ARITH119: *Introduction to fraction multiplication.*

Multiply.

$$\dfrac{5}{8} \times \dfrac{3}{7}$$

ARITH053: *Fraction multiplication.*

Multiply. Write your answer as a fraction in simplest form.

$$\dfrac{2}{5} \times \dfrac{9}{10}$$

ARITH095: *Word problem with fractions.*

There are 60 new houses being built in a neighborhood. Last month, $\dfrac{2}{3}$ of them were sold. This month, $\dfrac{3}{4}$ of the remaining houses were sold. How many houses are left to be sold?

ARITH088: *The reciprocal of a number.*

Find the reciprocals of the numbers below.

The reciprocal of 2 is $\square$

The reciprocal of $\dfrac{1}{3}$ is $\square$

ARITH694: *Division involving a whole number and a fraction.*

Divide. Write your answer in simplest form.

$$\dfrac{4}{3} \div 4$$

ARITH022: *Fraction division.*

Divide. Write your answer as a fraction in simplest form.

$$\dfrac{3}{5} \div \dfrac{9}{16}$$

* ~~ARITH697:~~ *Mixed arithmetic operations with fractions.*

Evaluate.

$$\left(\dfrac{3}{4} - \dfrac{4}{9} \right) \cdot \dfrac{6}{7}$$

Write your answer in simplest form.

ARITH662: *Introduction to mixed numbers and improper fractions.*

Each circle counts as one whole.

Write a mixed number giving the amount shaded.
Then, write this amount as an improper fraction.

ARITH015: *Writing an improper fraction as a mixed number.*

Write $\dfrac{15}{7}$ as a mixed number.

ARITH619: *Writing a mixed number as an improper fraction.*

Write $1\dfrac{2}{5}$ as an improper fraction.

ARITH215: *Addition or subtraction of mixed numbers with same denominator.*

Subtract. Write your answer as a mixed number in simplest form.

$$6\dfrac{5}{11} - 2\dfrac{4}{11}$$

ARITH084: *Addition of mixed numbers with same denominator and carry.*

Add. Write your answer as a mixed number in simplest form.

$$4\dfrac{6}{7} + 7\dfrac{6}{7}$$

ARITH216: *Subtraction of mixed numbers with same denominator and borrowing.*

Subtract. Write your answer as a mixed number in simplest form.

$$8\dfrac{7}{10} - 2\dfrac{9}{10}$$

ARITH085: *Addition or subtraction of mixed numbers with different denominators.*

Add. Write your answer as a mixed number in simplest form.

$$2\dfrac{1}{2} + 3\dfrac{4}{5}$$

ARITH020: *Mixed number multiplication: Problem type 1.*

Multiply. Write your answer as a mixed number in simplest form.

$$5\dfrac{3}{7} \times \dfrac{3}{8}$$

ARITH076: *Mixed number multiplication: Problem type 2.*

Multiply. Write your answer as a mixed number in simplest form.

$$3\frac{1}{6} \times 2\frac{4}{7}$$

ARITH068: *Mixed number division.*

Divide. Write your answer as a fraction or a mixed number in simplest form.

$$2\frac{1}{6} \div 8\frac{2}{3}$$

ARITH127: *Introduction to decimals.*

The figure below is divided into 100 small squares of equal size.
How much of the figure is shaded?
Give the amount as a fraction and as a decimal.
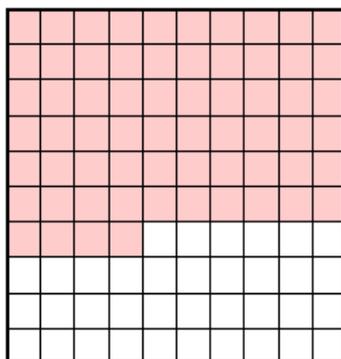
Fraction: ☐

Decimal: ☐

ARITH110: *Tenths and hundredths decimal place value.*

Give the digits in the ones place and the tenths place.

78.26

ARITH220: *Decimal place value.*

Find the digits in the hundreds place, in the tenths place, and in the thousandths place for the following number.

684.6907

hundreds:

tenths:

thousandths:

ARITH221: *Rounding decimals.*

Round 0.721 to the nearest hundredth.

ARITH129: *Introduction to ordering decimals.*

Use $<$, $>$, or $=$ to compare the following decimals.

8.49 ☐ 8.44

6.90 ☐ 6.9

0.08 ☐ 0.3

ARITH608: *Ordering decimals.*

Order the numbers below from least to greatest.

8.68 , 6.5521 , 8.6 , 8.608

ARITH609: *Ordering fractions and decimals.*

Order the numbers below from least to greatest.

$\dfrac{47}{10}$, 4.722 , 4.45 , $4\dfrac{8}{11}$

☐ $<$ ☐ $<$ ☐ $<$ ☐

ARITH670: *Introduction to writing a decimal as a fraction.*

Write 0.8 as a fraction.

ARITH087: *Converting a decimal to a fraction.*

Write 0.34 as a fraction in simplest form.

ARITH671: *Introduction to converting a fraction to a decimal.*

Write $\dfrac{44}{1000}$ as a decimal.

ARITH222: *Converting a fraction to a terminating decimal.*

Write $\dfrac{99}{50}$ as a decimal.

ARITH089: *Converting a fraction to a repeating decimal.*

Write $\dfrac{31}{11}$ as a decimal. If necessary, use a bar to indicate which digit or group of digits repeats.

ARITH672: *Introduction to writing a decimal as a mixed number.*

Write 26.184 as a mixed number.

ARITH223: *Converting a mixed number to a decimal.*

Write $62\dfrac{3}{40}$ as a decimal.

ARITH624: *Addition of aligned decimals.*

Add.

$$
\begin{array}{r}
0.835 \\
+\ 14.6 \\
\hline
\end{array}
$$

ARITH668: *Addition with money.*

Keisha spent $\$6.09$ at one store and $\$4.41$ at another store.
How much money did she spend total at the two stores?

ARITH013: *Decimal addition.*

Add.

$7.48 + 5.74 + 4.5$

ARITH625: *Subtraction of aligned decimals.*

Subtract.

```
   5.86
-  4.013
_____
```

ARITH669: *Subtraction with money.*

Rita had $6.28 . She then gave $4.45 to her friend.

How much money does Rita have left?

ARITH626: *Word problem with one decimal operation: Problem type 1.*

Lucy ran three times last week. Here are the distances she ran (in kilometers).

5.2 , 3.34 , 10

What is the total distance Lucy ran on these three days?

ARITH627: *Word problem with one decimal operation: Problem type 2.*

Michael buys a bottle of water for $2.79 . He gives the cashier a $5 bill. How much should he get back?

ARITH131: *Estimating a decimal sum or difference.*

Estimate $68.72 - 54.436$ by first rounding each number to the nearest whole number.

ARITH082: *Multiplication of a decimal by a power of ten.*

Multiply.

8.3×100

ARITH017: *Multiplication of a decimal by a whole number.*

Multiply.

```
     55.4
×       7
_____
```

ARITH055: *Decimal multiplication: Problem type 1.*

Multiply.

```
     7.07
×     6.5
_____
```

ARITH046: *Decimal multiplication: Problem type 2.*

Multiply.

$$
\begin{array}{r}
30.02 \\
\times \quad 3.47 \\
\hline
\end{array}
$$

* ARITH045: *Word problem with powers of ten.*

The weight of 100 identical samples of a substance is 0.01 pound.

What is the weight of $10,000$ samples?

ARITH628: *Word problem with multiple decimal operations: Problem type 1.*

Soo is mailing packages. Each small package costs her $\$2.80$ to send. Each large package costs her $\$3.40$. How much will it cost her to send 3 small packages and 4 large packages?

ARITH083: *Division of a decimal by a power of ten.*

Divide.

$$19.7 \div 1000$$

ARITH081: *Division of a decimal by a whole number.*

Divide.

$$8\overline{)2.88}$$

ARITH019: *Decimal division.*

Divide.

$$0.72\overline{)82.8}$$

ARITH629: *Word problem with multiple decimal operations: Problem type 2.*

Jenny made 3 identical necklaces, each having beads and a pendant. The total cost of the beads and pendants for all 3 necklaces was $\$20.70$. If the beads cost a total of $\$11.10$, how much did each pendant cost?

GEOM151: *Measuring an angle with the protractor.*

Use the protractor to find the degree measure of the angle.
Make sure to write your answer with the degree sign.
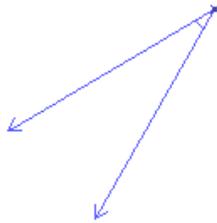
GEOM152: *Drawing an angle with the protractor.*

Draw a $70°$ angle using the ruler and protractor.
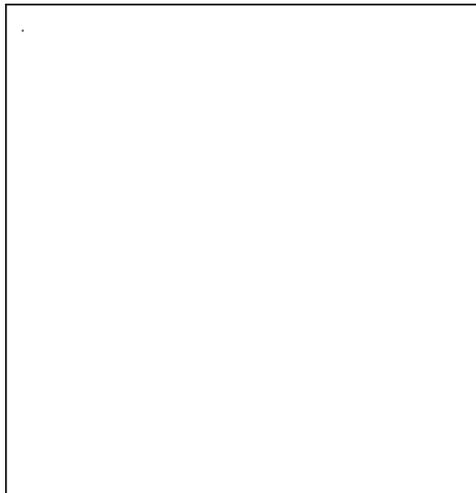
GEOM303: *Acute, obtuse, and right angles.*

Classify the four angles of the quadrilateral.
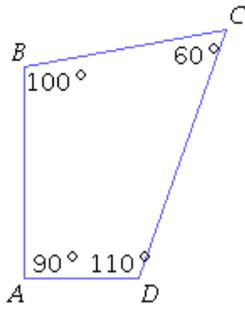
	Right	Acute	Obtuse
∠A	○	○	○
∠B	○	○	○
∠C	○	○	○
∠D	○	○	○

GEOM039: *Supplementary and complementary angles.*

(a) An angle measures $47°$. What is the measure of its complement?

(b) An angle measures $69°$. What is the measure of its supplement?

GEOM304: *Corresponding and alternate angles.*

In the figure below, lines a and b are cut by transversal n .

Give a pair of alternate exterior angles, a pair of alternate interior angles, and a pair of corresponding angles.
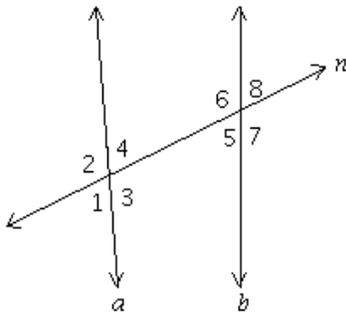
GEOM305: *Supplementary and vertical angles.*

Give one pair of supplementary angles and one pair of vertical angles shown in the figure below.
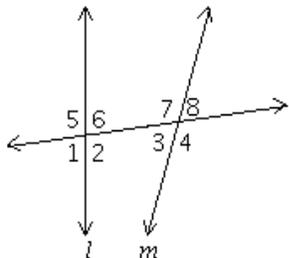
GEOM159: *Constructing congruent angles.*

Using the compass and ruler, construct a congruent angle with vertex A'.
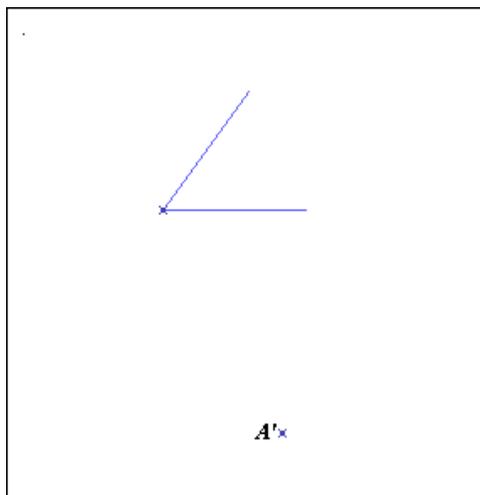
GEOM158: *Constructing an angle bisector.*

Use the compass and ruler to construct the bisector of the angle given below.
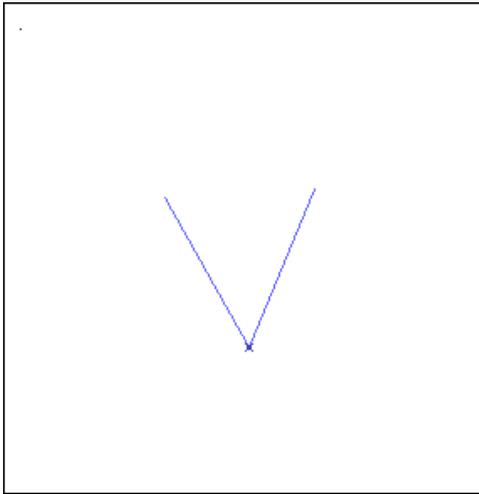
GEOM349: *Naming segments, rays, and lines.*

Classify each figure as a line, ray, or line segment. Then, show how to write it.

Figure	Type	How to write it
J K	○ line ○ ray ○ line segment	☐
M L	○ line ○ ray ○ line segment	☐
H G	○ line ○ ray ○ line segment	☐

GEOM358: *Introduction to parallel and perpendicular lines.*

Are the two lines parallel, perpendicular, or neither?

○ Parallel ○ Perpendicular ○ Neither	○ Parallel ○ Perpendicular ○ Neither

○ Parallel	○ Parallel
○ Perpendicular	○ Perpendicular
○ Neither	○ Neither

GEOM154: *Constructing the perpendicular bisector of a line segment.*

Use the compass and ruler to construct the perpendicular bisector of the line segment $\overline{AB}$.
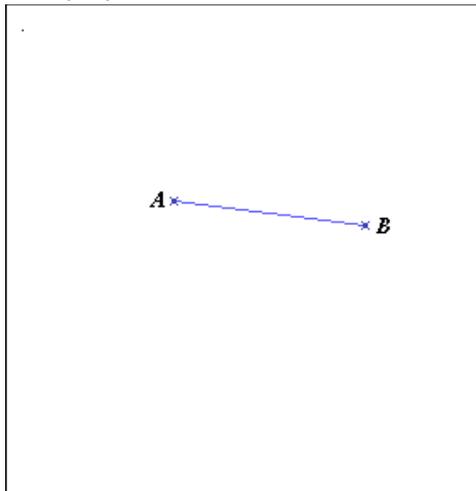
* ~~GEOM525:~~ *Computing distances on the number line.*

Find DE and DF.

GEOM361: *Naming polygons.*

Answer the questions about the polygons below.
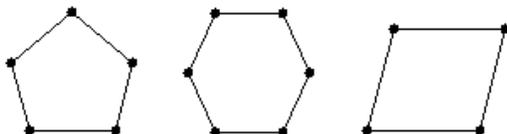
Figure A   Figure B   Figure C

Which figure is a pentagon?	Figure A, B, C or None
Which figure is a hexagon?	Figure A, B, C or None
Which figure is an octagon?	Figure A, B, C or None

GEOM306: *Acute, obtuse, and right triangles.*

Are the triangles below acute, obtuse, or right?
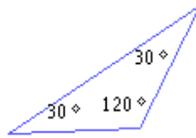
Triangle A   Triangle B
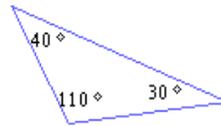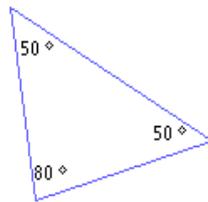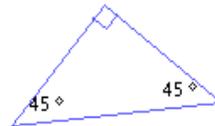
Triangle C   Triangle D

	Acute	Obtuse	Right
Triangle A	○	○	○
Triangle B	○	○	○
Triangle C	○	○	○
Triangle D	○	○	○

GEOM307: *Scalene, isosceles, and equilateral triangles.*

For each triangle, check all that apply.
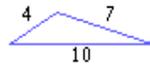
- Scalene
- Isosceles
- Equilateral

- Scalene
- Isosceles
- Equilateral

- Scalene
- Isosceles
- Equilateral

- Scalene
- Isosceles
- Equilateral

GEOM801: *Area of a triangle.*

Find the area of the triangle below.
Be sure to include the correct unit in your answer.
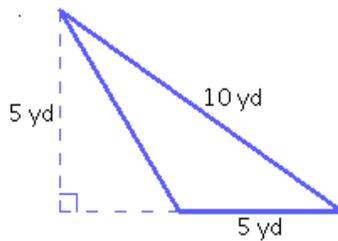
GEOM001: *Sum of the angle measures of a triangle.*

Find the value of x .
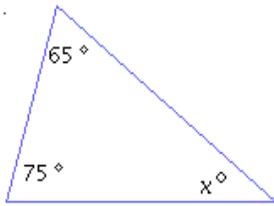
GEOM908: *Solving a triangle: Problem type 1.*

Solve for x, where x is the measure of an angle in the following figure:
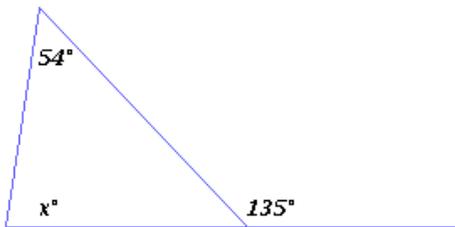
* GEOM044: *Pythagorean Theorem.*

For the following right triangle, find the side length x. Round your answer to the nearest tenth.
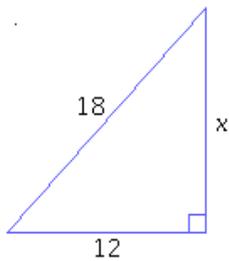
GEOM870: *Sum of the angle measures of a quadrilateral.*

Find the value of x.
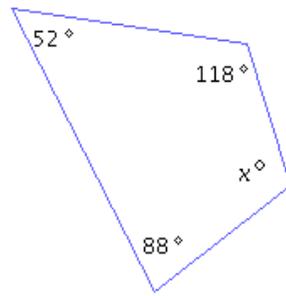
GEOM867: *Introduction to parallelograms.*

Answer the questions about the figures below.
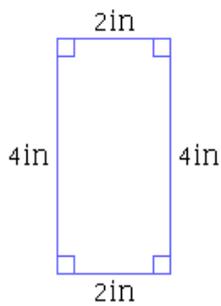
Figure A
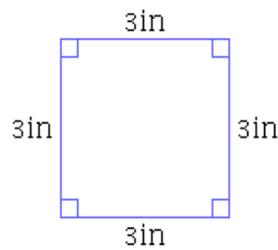
Figure B
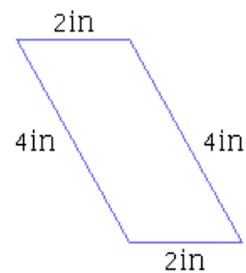
Figure C

Which figures are parallelograms?
Mark all that apply.

- Figure A   - Figure B   - Figure C   - None of the figures

Which figures are squares?
Mark all that apply.

- Figure A   - Figure B   - Figure C   - None of the figures

Which figures are rectangles?
Mark all that apply.

- Figure A   - Figure B   - Figure C   - None of the figures

GEOM310: *Classifying quadrilaterals.*

For each of the following quadrilaterals, select all the properties that must be true.

	All sides congruent	All right angles	Two pairs of parallel sides	Only one pair of parallel sides
Rhombus	☐	☐	☐	☐
Rectangle	☐	☐	☐	☐
Parallelogram	☐	☐	☐	☐

GEOM532: *Classifying parallelograms.*

True or False?

a. Every rectangle with four congruent sides is a square.

b. Every square is a parallelogram.

c. Every rhombus is a quadrilateral.

d. Every quadrilateral is a rhombus.

GEOM300: *Perimeter of a square or a rectangle.*

Find the perimeter of the square. Be sure to write the correct unit in your answer.

13m

GEOM339: *Perimeter of a polygon.*

Find the perimeter of the following polygon. Be sure to include the correct unit in your answer.

13in

9in

9in

9in

10in
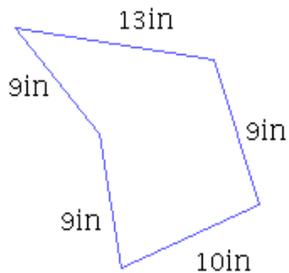
GEOM078: *Sides of polygons having the same perimeter.*

A wire is first bent into the shape of a rectangle with width $6\,\text{in}$ and length $18\,\text{in}$. Then the wire is unbent and reshaped into a triangle. If each side of the triangle has equal length, what is this length?

GEOM221: *Finding the missing length in a figure.*

Find the missing side length.

Assume that all intersecting sides meet at right angles.
Be sure to include the correct unit in your answer.
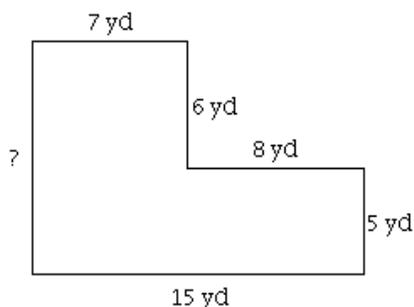
GEOM353: *Perimeter of a piecewise rectangular figure.*

Find the perimeter of the figure below. Notice that one side length is not given.

Assume that all intersecting sides meet at right angles.
Be sure to include the correct unit in your answer.
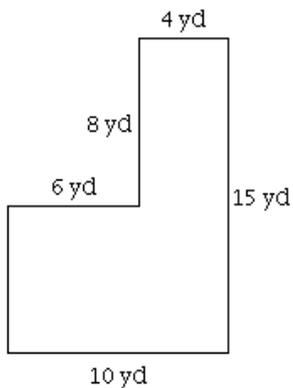
GEOM866: *Perimeter and area on a grid.*

Find the perimeter and area of the shaded figure below.

1 unit
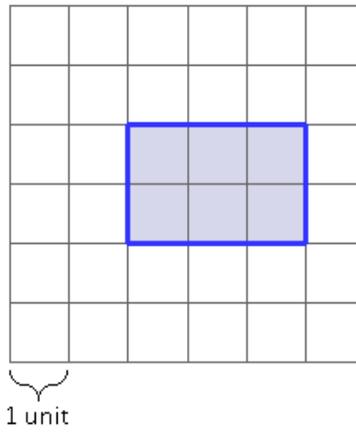
Perimeter $=$ ☐ units

Area $=$ ☐ square units
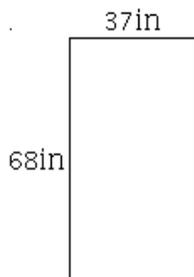
GEOM019: *Area of a square or a rectangle.*

12 cm

9 cm
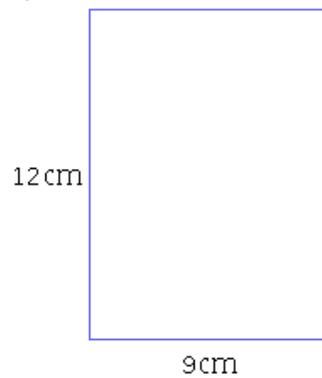
Find the area of this rectangle.

GEOM350: *Distinguishing between area and perimeter.*

The figure below shows a rectangular window.

37 in

68 in

(a) Use the calculator to find the perimeter and area of the window.
   Make sure to include the correct units.

   Perimeter:
   Area:

(b) A silver wire will be placed around the window.
   Which measure would be used in finding the amount of wire needed?

   - Perimeter
   - Area

(c) The window's glass will be replaced.
   Which measure would be used in finding the amount of glass needed?

   - Perimeter
   - Area

GEOM351: *Areas of rectangles with the same perimeter.*

A rectangular lot is 90 yards wide and 125 yards long.

Give the length and width of another rectangular lot that has the same perimeter but a larger area.

$$\text{width } = \boxed{} \text{ yards}$$
$$\text{length } = \boxed{} \text{ yards}$$

GEOM217: *Finding the side length of a rectangle given its perimeter or area.*

The area of a rectangular field is 7821 yd^2 . If the width of the field is 79 yards, what is its length?
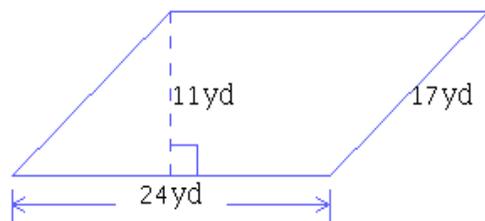
GEOM340: *Area of a piecewise rectangular figure.*

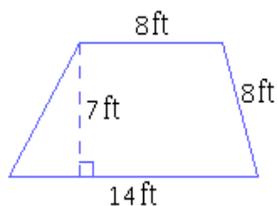Find the area of the figure. (Sides meet at right angles.)
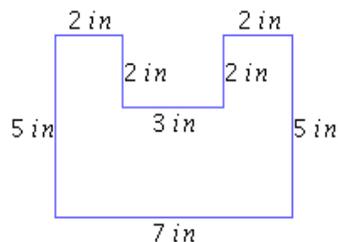
GEOM022: *Area of a parallelogram.*

Find the area of this parallelogram. Be sure to include the correct unit in your answer.

GEOM023: *Area of a trapezoid.*

Find the area of this trapezoid. Be sure to include the correct unit in your answer.

* ~~GEOM344:~~ *Area involving rectangles and triangles.*

A rectangle is removed from a right triangle to create the shaded region shown below. Find the area of the shaded region. Be sure to include the correct unit in your answer.
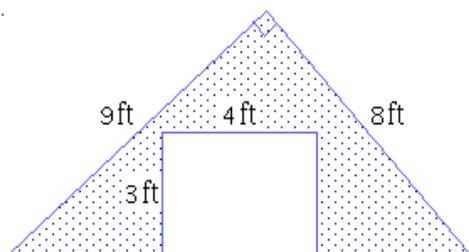
GEOM869: *Estimates and exact answers.*

Find the perimeter of the rectangle.
Give an exact answer if possible. Otherwise, give an estimate.

9 ft

27 ft

ALGE732: *Finding simple patterns in shapes.*

The sequence of figures shows a pattern.
If the pattern repeats, how many small squares will Figure 4 have?
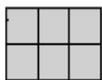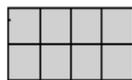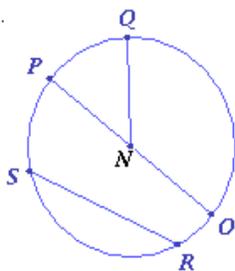
Figure 1   Figure 2   Figure 3

GEOM347: *Introduction to circle: diameter, radius, and chord.*

A circle with center N is shown in the figure below. Use the segments shown in this figure to fill in the blanks.

(a) Name a diameter

(b) Name a radius

(c) Name a chord

(d) Given that the length of $\overline{OP}$ is 8 units, give the length of $\overline{NQ}$

GEOM016: *Circumference of a circle.*

The radius of a pie measures $12\,\text{cm}$. What is the circumference of the pie?

Use the value 3.14 for π, and do not round your answer. Be sure to include the correct unit in your answer.


GEOM218: *Finding the radius or the diameter of a circle given its circumference.*

The circumference of a circular garden is 125.6 feet. What is the diameter of the garden? Use 3.14 for π and do not round your answer.

GEOM802: *Circumference and area of a circle.*

Find the circumference and the area of a circle with diameter $5\,\text{yd}$.

Use the value 3.14 for π , and do not round your responses. Be sure to include the correct units in your responses.

5 yd
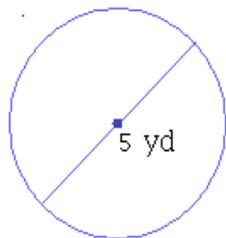
* GEOM301: *Perimeter involving rectangles and circles.*

A training field is designed by joining a rectangle and two semicircles, as shown below. The rectangle is $85\,\text{m}$ long and $54\,\text{m}$ wide. What is the length of a training track running around the field? (Use the value 3.14 for π , and do not round your answer. Be sure to include the correct unit in your answer.)

54m

85m
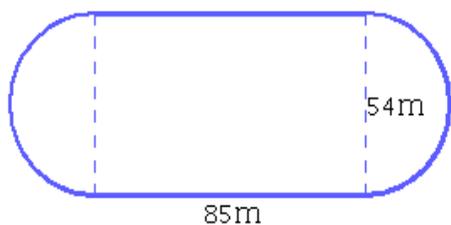
* GEOM036: *Area between two concentric circles.*

At the park there is a pool shaped like a circle. A ring-shaped path goes around the pool. Its inner radius is $12\,\text{yd}$ and its outer radius is $17\,\text{yd}$.
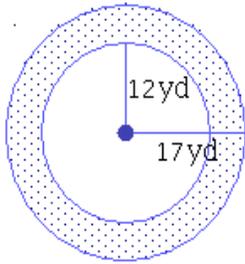
We are going to give a new layer of coating to the path. If one gallon of coating can cover $6 \, \text{yd}^2$, how many gallons of coating do we need? Note that coating comes only by the gallon, so the number of gallons must be a whole number. (Use the value 3.14 for **π** .)

GEOM302: *Area involving rectangles and circles.*

A rectangular piece of paper with length $39 \, \text{cm}$ and width $16 \, \text{cm}$ has two semicircles cut out of it, as shown below.

Find the area of the paper that remains. Use the value 3.14 for **π** , and do not round your answer. Be sure to include the correct unit in your answer.
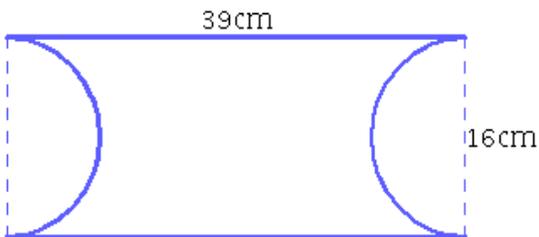
* ~~GEOM214:~~ *Area involving inscribed figures.*

A circle is placed in a square with a side length of $4 \, \text{mm}$, as shown below.

Find the area of the shaded region. Use the value 3.14 for **π** , and do not round your answer. Be sure to include the correct unit in your answer.
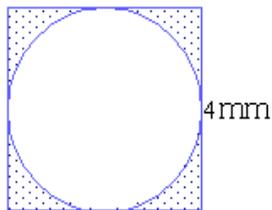
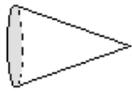**GEOM868:** *Classifying solids.*

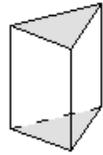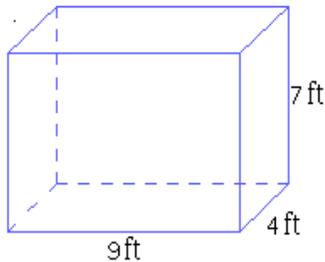Answer the questions about the solids below.

Figure A   Figure B   Figure C

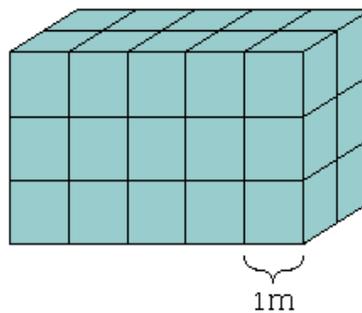| Which figure shows a cone? (A,B,C,None) |
| Which figure shows a triangular prism? (A,B,C,None) |
| Which figure shows a triangular pyramid? (A,B,C,None) |

GEOM311: *Volume of a cube or a rectangular prism.*
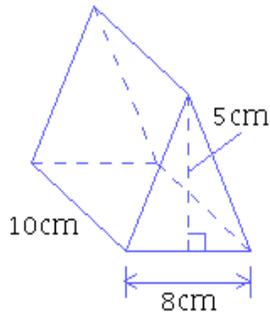
Find the volume of this rectangular prism.

7 ft
4 ft
9 ft

GEOM354: *Volume of a solid made of unit cubes.*

The solid below is made from cubes.
Find its volume.

1m

GEOM090: *Volume of a triangular prism.*

Find the volume of this triangular prism. Be sure to include the correct unit in your answer.

* ~~GEOM033:~~ *Volume of a pyramid.*

Find the volume of this triangular pyramid. (If your answer is not an integer, write it as a fraction or a mixed number. Be sure to include the correct unit in your answer.)
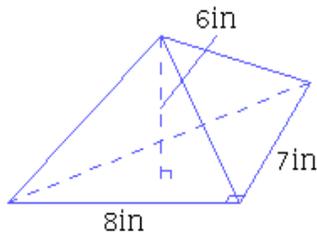

GEOM035: *Volume of a cylinder.*

The diameter of a water tower tank is $17\,\text{ft}$, and its height is $8\,\text{ft}$. What is the volume of water that can be stored in the tank?
(Use the value 3.14 for **π** , and round your answer to the nearest cubic foot. Be sure to include the correct unit in your answer.)
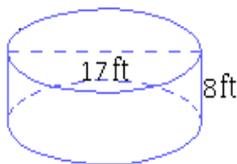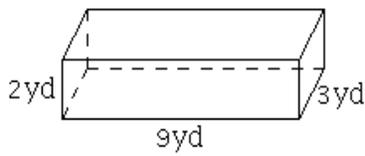

* ~~GEOM086:~~ *Volume of a cone.*

Find the volume of a cone with a base diameter of $8\,\text{m}$ and a height of $6\,\text{m}$. Write the exact volume in terms of **π** , and be sure to include the correct unit in your answer.
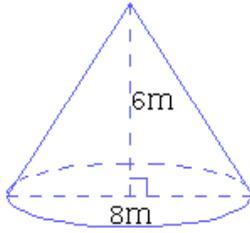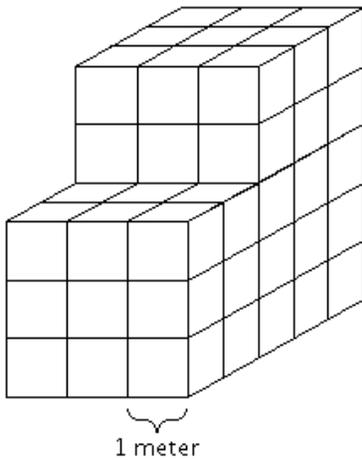
GEOM031: *Surface area of a cube or a rectangular prism.*

Find the surface area of this rectangular prism. Be sure to include the correct unit in your answer.
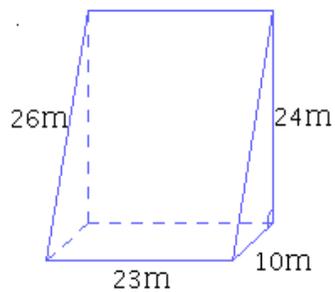

* ~~GEOM345~~: *Surface area of a solid made of unit cubes.*

The solid below is made from 1 meter cubes. What is the total surface area of the solid? Be sure to include the correct unit in your answer.

* ~~GEOM091~~: *Surface area of a triangular prism.*

Find the surface area of this triangular prism. Be sure to include the correct unit in your answer.

26m   24m

23m   10m

* **GEOM034:** *Surface area of a cylinder.*

Find the surface area of a cylinder with a base diameter of $4\,\text{ft}$ and a height of $9\,\text{ft}$.

Write your answer in terms of **π** , and be sure to include the correct unit.

4 ft

9ft
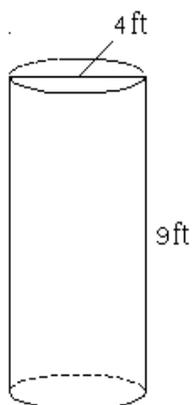
GEOM219: *Nets of solids.*

Here are three solids.

a.   b.   c.
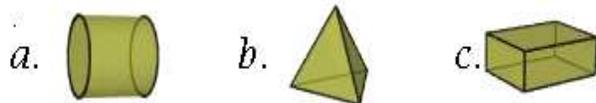
For each net below, select the solid above to which it folds.

1		2	
	○ a ○ b ○ c ○ None		○ a ○ b ○ c ○ None
3		4	
	○ a ○ b ○ c ○ None		○ a ○ b ○ c ○ None

GEOM348: *Vertices, edges, and faces of a solid.*

Fill in the blank under each figure below.

cube	triangular prism	tetrahedron
Number of faces = ▢	Number of edges = ▢	Number of vertices = ▢

GEOM816: *Side views of a solid made of cubes.*

Draw the front and right views of the solid below.

Front   Right
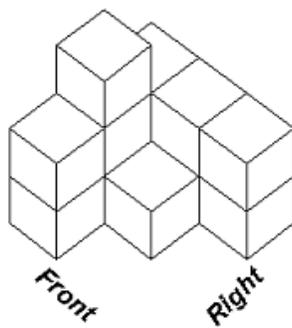
GEOM359: *Introduction to congruence.*

Which pairs of figures below are congruent?
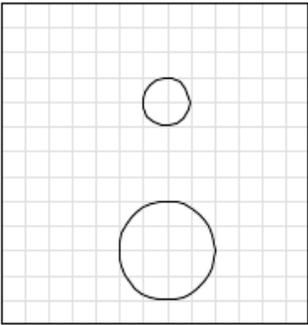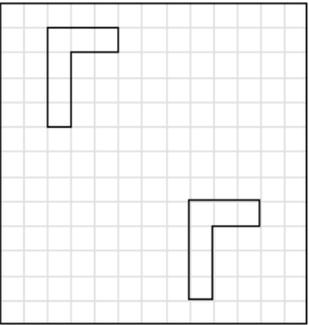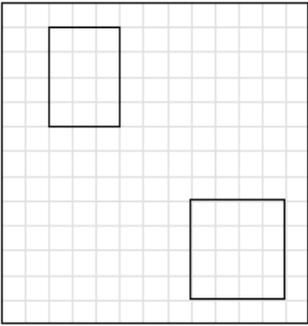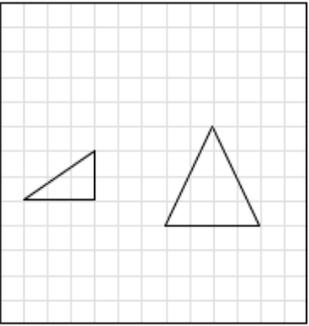
Congruent?	○ Yes ○ No	○ Yes ○ No
Congruent?	○ Yes ○ No	○ Yes ○ No

GEOM360: *Introduction to similarity.*

Which pairs of figures are congruent? Which pairs are similar?
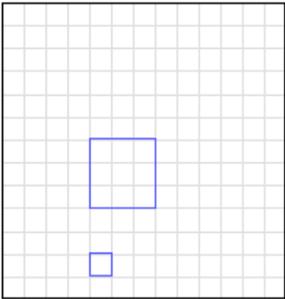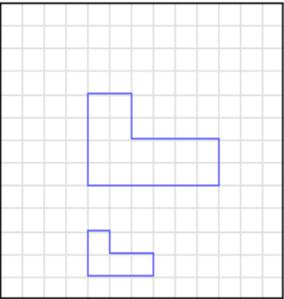
Congruent?　○ Yes　○ No	Congruent?　○ Yes　○ No
Similar?　○ Yes　○ No	Similar?　○ Yes　○ No

Congruent?　○ Yes　○ No	Congruent?　○ Yes　○ No
Similar?　○ Yes　○ No	Similar?　○ Yes　○ No

GEOM037: *Similar polygons.*

The quadrilaterals $ABCD$ and $JKLM$ are similar.
Find the length x of $\overline{KL}$.
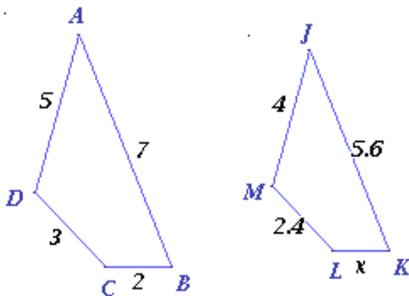
* ~~GEOM337:~~ *Indirect measurement.*

A pole that is $2.7\,\mathrm{m}$ tall casts a shadow that is $1.55\,\mathrm{m}$ long. At the same time a nearby building casts a shadow that is $50.25\,\mathrm{m}$ long. How tall is the building? Round your answer to the nearest meter.

GEOM355: *Introduction to translations.*

Draw the figure after a translation 1 unit to the right and 1 unit up.
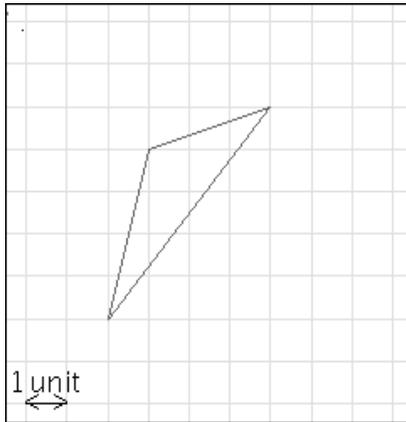
1 unit

* ~~GEOM330~~: *Translation of a polygon.*

Draw the following quadrilateral after a translation 2 units to the left and 1 unit down.
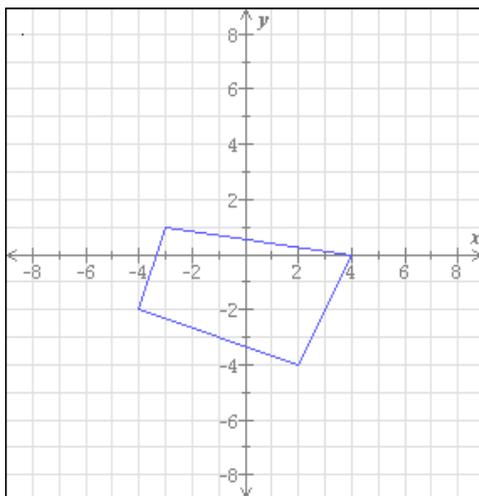
GEOM356: *Introduction to reflections.*

Draw the reflection of the figure over the line shown.
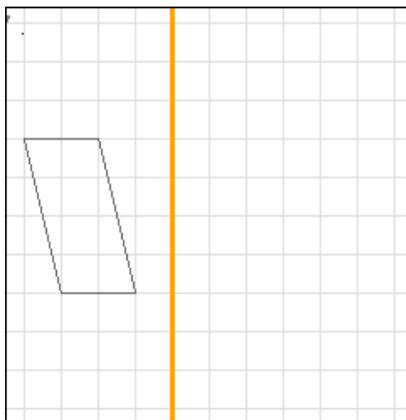
* GEOM332: *Reflection of a polygon over a vertical or horizontal line.*

Draw the reflection of the following quadrilateral over the line n .
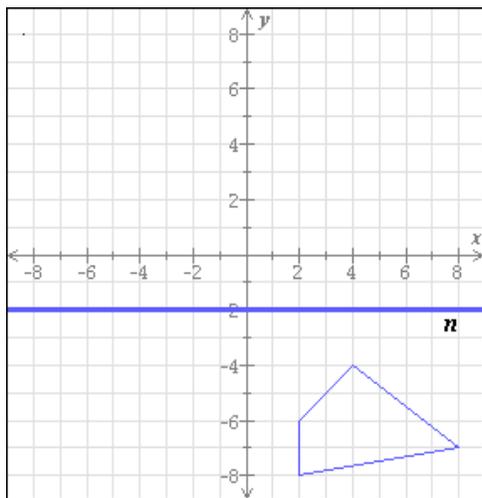
GEOM334: *Drawing lines of symmetry.*

Draw all lines of symmetry for the following figure.
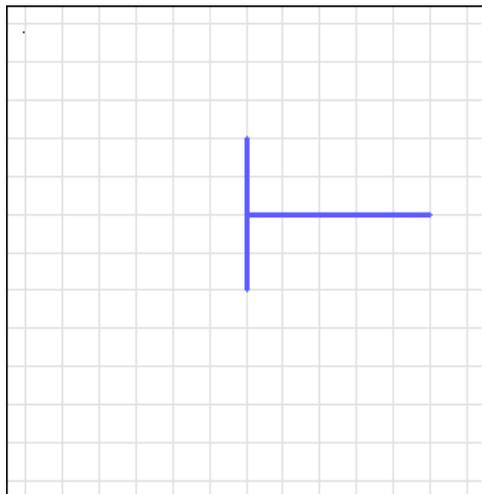
* GEOM335: *Rotation of a figure about the origin.*

Draw the following triangle after a $180°$ rotation about the origin.
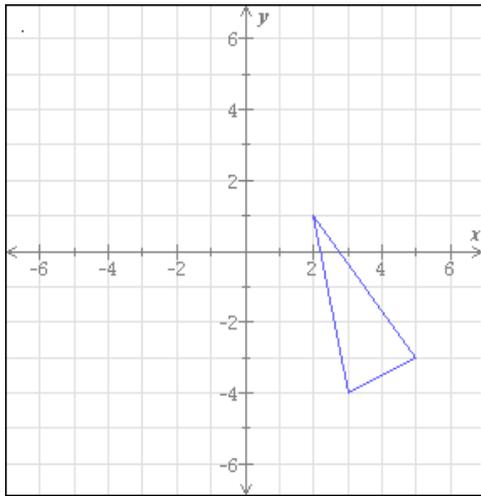
GEOM357: *Identifying transformations.*

For each pair of figures below, choose how they are related.

○ Translation	○ Translation	○ Translation	○ Translation
○ Reflection	○ Reflection	○ Reflection	○ Reflection
○ Rotation	○ Rotation	○ Rotation	○ Rotation
○ None of these	○ None of these	○ None of these	○ None of these

MSTAT058: *Choosing a measuring tool.*

For each situation below, choose the tool that should be used.

Jessica would like to know how much tea a mug holds. What should she use? (ruler, scale, thermometer, clock, measuring cup)

Boris wants to know the time it takes him to walk to the store. What should he use? (ruler, scale, thermometer, clock, measuring cup)

Brian wants to find how hot a pool is. What should he use? (ruler, scale, thermometer, clock, measuring cup)

MSTAT059: *Choosing customary measurement units.*

Fill in the blanks below with the correct units.

  a. To wash his car, Hong used 5 ____ of water.
     (cups, gallons)

  b. At the zoo, Amanda saw an elephant that weighed about 5 ____.
     (ounces, pounds, tons)

c. A telephone pole is about 11 ____ tall.
(inches, feet, yards, miles)

MSTAT062: *Reading a positive temperature from a thermometer.*

What temperature does the thermometer show?

°C

80 ◇

70 ◇

60 ◇

50 ◇

40 ◇

30 ◇

20 ◇

10 ◇

0 ◇
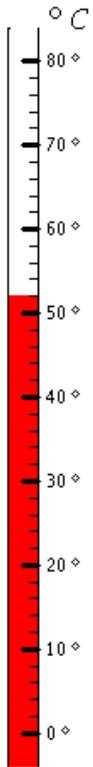
MSTAT033: *Measuring length to the nearest inch.*

Use a ruler to find the length of the stick.

Write your answer to the nearest inch.
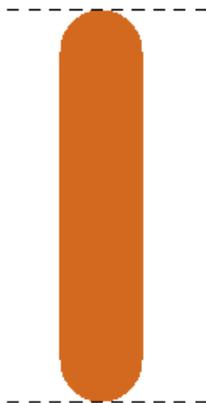
MSTAT034: *Measuring length to the nearest quarter or half inch.*

Use a ruler to find the length of the stick.

Write your answer to the nearest $\frac{1}{2}$ inch.
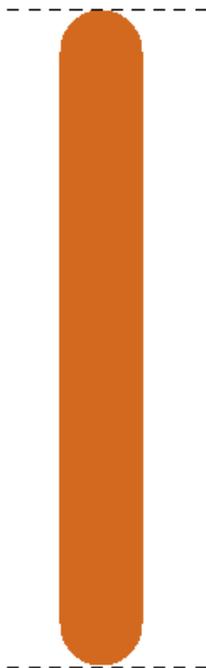
MSTAT035: *Conversions involving measurements in feet and inches.*

A board is 51 inches long. How long is it in feet and inches?

MSTAT036: *Adding customary units of length.*

Three dressers are placed side by side. One dresser is 3 feet 2 inches wide, another is 4 feet 9 inches wide, and the third is 2 feet 11 inches wide. How wide are they combined?

Write your answer in feet and inches. Use a number less than 12 for inches.
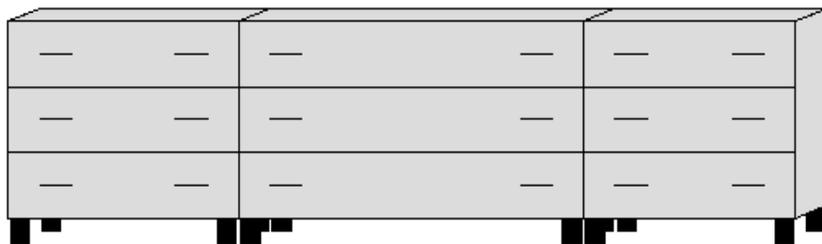
UNIT005: *Customary unit conversion with whole number values.*

A container holds 8 quarts of juice. How much is this in gallons?

Use the table below. Include the correct unit in your answer.

	Unit	Symbol	Fact
	fluid ounce	fl oz	
	cup	c	1 c = 8 fl oz
Capacity	pint	pt	1 pt = 2 c
	quart	qt	1 qt = 2 pt
	gallon	gal	1 gal = 4 qt

UNIT006: *Customary unit conversion with whole number values, two-step conversion.*

A container holds 16 pints of lemonade. How much is this in gallons?

Use the table below. Include the correct unit in your answer.

Capacity		
Unit	Symbol	Fact
fluid ounce	fl oz	
cup	c	1 c = 8 fl oz
pint	pt	1 pt = 2 c
quart	qt	1 qt = 2 pt
gallon	gal	1 gal = 4 qt

UNIT007: *Customary unit conversion with mixed number values.*

A jar holds $2\dfrac{3}{4}$ cups of water. How much is this in fluid ounces?

Write your answer as a whole number or a mixed number in simplest form. Include the correct unit in your answer.

UNIT008: *Customary unit conversion with mixed number values, two-step conversion.*

A chicken soup recipe calls for 11 cups of chicken stock. How much is this in quarts?
Write your answer as a whole number or a mixed number in simplest form. Include the correct unit in your answer.

MSTAT060: *Choosing metric measurement units.*

Fill in the blanks below with the correct units.

a. A dollar bill is about 16 ____ long.
   (millimeters, centimeters, meters, kilometers)

b. Goran bought a candy bar. Its mass was about 45 ____.
   (grams, kilograms)

c. The can of soda held about 355 ____.
   (milliliters, liters)

MSTAT063: *Measuring length to the nearest centimeter.*

Find the length of the stick.

Write your answer to the nearest centimeter.
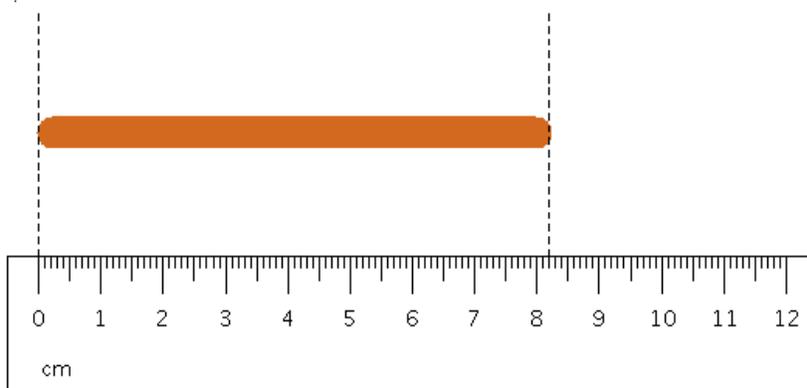
MSTAT064: *Measuring length to the nearest millimeter.*

Find the length of the stick.

Write your answer to the nearest millimeter.
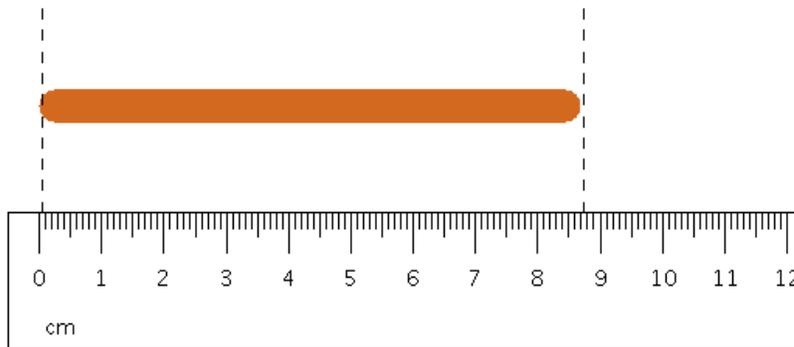
UNIT001: *Metric distance conversion with whole number values.*

A cable is 30 decimeters long. How long is the cable in meters?

Be sure to include the correct unit in your answer.

UNIT002: *Metric mass or capacity conversion with whole number values.*

A cereal bar contains 4000 milligrams of protein. How much does it contain in grams?

Be sure to include the correct unit in your answer.

UNIT003: *Metric distance conversion with decimal values.*

A cable is $7.3\,\mathrm{m}$ long. How long is the cable in decimeters?

Be sure to include the correct unit in your answer.

UNIT004: *Metric conversion with decimal values, two-step conversion.*

A multivitamin tablet contains $0.12\,\mathrm{g}$ of vitamin C. How much vitamin C does a bottle of 40 tablets contain?

Write your answer in *milligrams*.

UNIT034: *Conversion between metric and customary unit systems.*

A boy weighs 44 pounds. How much does he weigh in kilograms? Use the following conversion: 1 kilogram is 2.2 pounds.

MSTAT065: *Converting between temperatures in Fahrenheit and Celsius.*

Convert $46\,^{\circ}F$ to degrees Celsius.
If necessary, round your answer to the nearest tenth of a degree.

Here are the formulas.

$$C = \frac{5}{9}(F - 32)$$

$$F = \frac{9}{5}C + 32$$

TIME010: *Telling time.*

It is morning.
What time does the clock show?
(Put AM or PM in your answer.)

UNIT012: *Time unit conversion with whole number values.*

Dr. Moore just started an experiment. He will collect data for 6 days. How many hours is this?

TIME008: *Reading a calendar.*

Use the calendar to answer the questions below.

September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

(a) What date is the last Thursday in September?

(b) Donna's first day of training is September 24. Donna's last day of training is October 7. How long is her training?

TIME009: *Introduction to adding time.*

Soo fell asleep at 5:25 PM.

She woke up after 2 hours and 15 minutes.
What time did Soo wake up?

TIME006: *Adding time.*

Milan rented a movie. He started the movie at $3{:}38\,\mathrm{PM}$, and it was 2 hours 37 minutes long. When did the movie end?

TIME011: *Introduction to elapsed time.*

Jenny started a puzzle at $3{:}15$ PM and finished it at $4{:}53$ PM .

How long did it take her? Give your answer in hours and minutes.

TIME007: *Subtracting time.*

Lena rented a movie. She started the movie at $11{:}53$ AM and it ended at $2{:}23$ PM. How long was the movie?

* ~~ARITH063:~~ *Word problem with clocks.*

The train station clock runs too fast and gains 9 minutes every 5 days.

How many minutes and seconds will it have gained at the end of 8 days?

MSTAT004: *Histograms for numerical data.*

The heights (in inches) of a sample of 17 adult males are:

63, 65, 78, 79, 80, 74, 75, 72, 64, 69, 62, 73, 68, 77, 71, 70, 76.
Draw the histogram for these data.
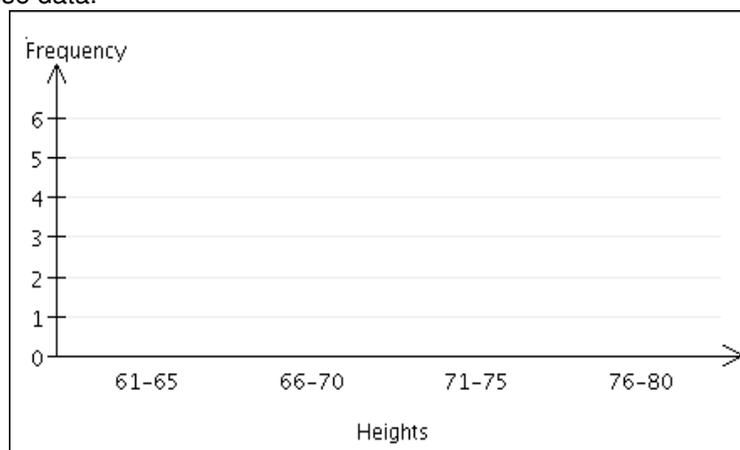
MSTAT005: *Bar graphs for non-numerical data.*

A new model of shirt at the clothing store comes in 5 colors:

     red, gray, yellow, black, and green.

There were 15 shirts sold this week. Here they are by color:

green, green, yellow, black, green, red, gray, green, red, green, gray, green, green, red, black

Draw the bar graph for these data.
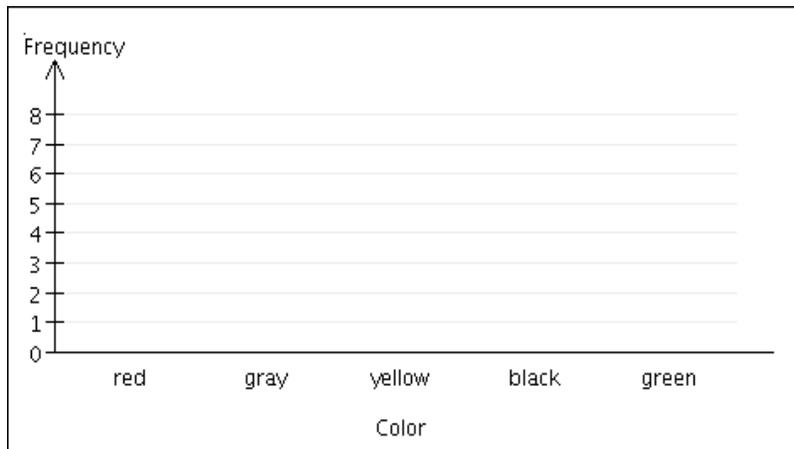
MSTAT037: *Line plots.*

Draw the line plot for these numbers.

$9, 9, 8, 9, 8, 5, 8, 5, 3$
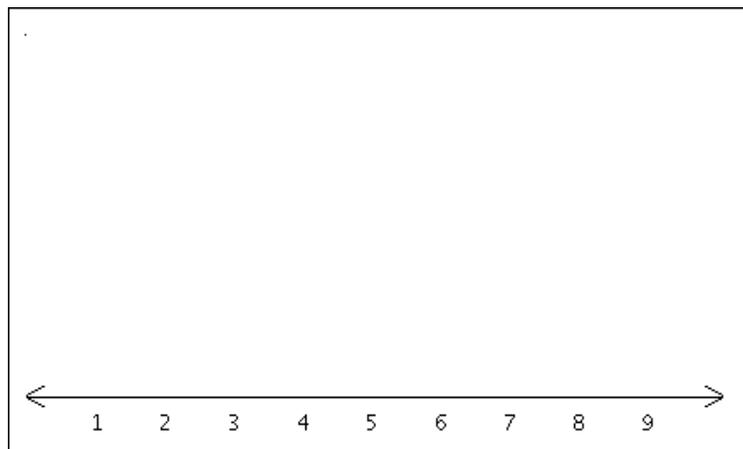
MSTAT056: *Interpreting tally tables.*

Donna asked her classmates to choose their favorite color.
She ended up with the tally table below.

How many students chose blue?

Color	Tally
Blue	卌
Red	||

Purple	|||
Green	ⅡⅢⅡ ⅢⅢ ||

MSTAT057: *Interpreting pictograph tables.*

The table below shows the numbers of cars yesterday on a town's main streets.

Baker Avenue	🚗 🚗
Central Avenue	🚗 🚗 🚗 🚗 🚗
Milton Avenue	🚗 🚗 🚗 🚗 🚗 🚗
Pine Street	🚗 🚗 🚗 🚗 🚗
Second Street	🚗 🚗 🚗 🚗 🚗 🚗

Each 🚗 equals 1000 cars.

(a) How many cars were on Milton Avenue?

(b) How many more cars were on Pine Street than on Baker Avenue?

MSTAT024: *Interpreting bar graphs.*

A local real estate company has 5 real estate agents. The number of houses that each agent sold last year is shown in the bar graph below. Using this bar graph, answer the questions.
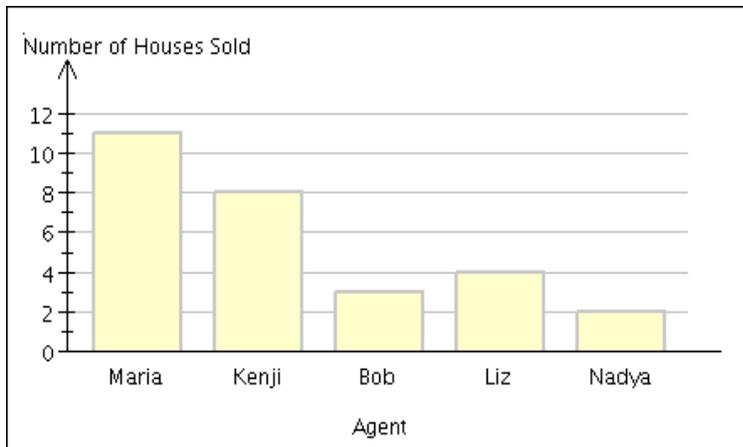
(a) Which agent sold the fewest houses? How many houses did that agent sell?

(b) How many more houses did Maria sell than Bob?

(c) How many agents from the company sold more than 3 houses?

MSTAT044: *Double bar graphs.*

There are three libraries in Tomsville. Each library has fiction and non-fiction books available. The double bar graph below shows how many of each are at each library. Use this graph to answer the questions.
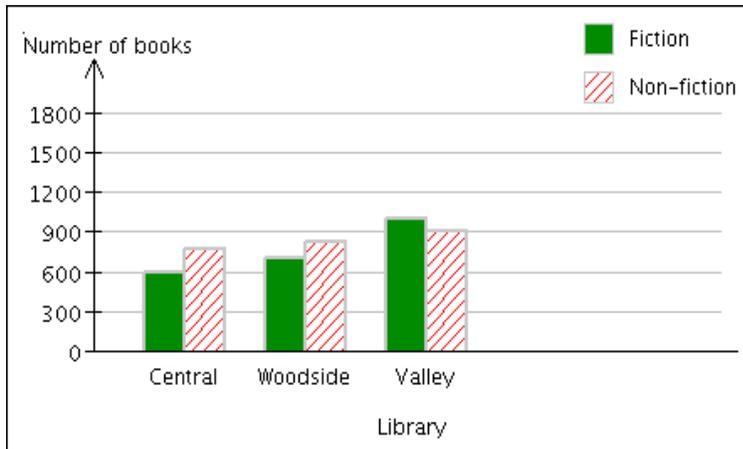
(a) Estimate the number of fiction books at Woodside.

(b) Which libraries have more non-fiction books than fiction books?

(c) Estimate the total number of books at Valley.

MSTAT007: *Interpreting line graphs.*

The graph below shows the numbers of orders received by a company for five months.
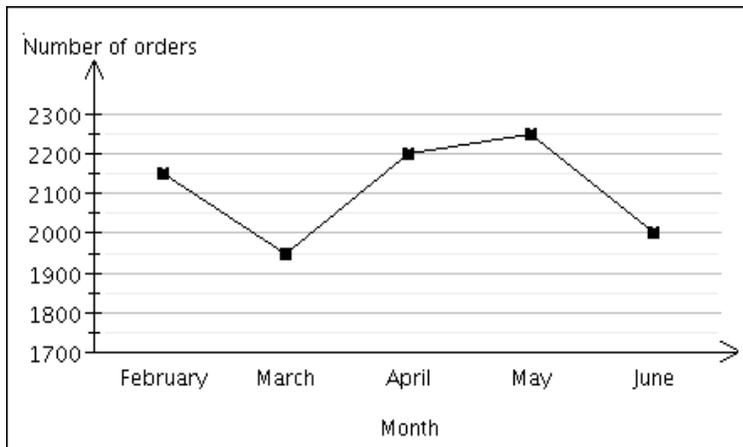
(a) What was the greatest number of orders in a month?

(b) When did the number of orders have the greatest increase?

STAT804: *Interpreting circle graphs or pie charts.*

Each person in a community was asked, "What is your favorite type of pet?"   The circle graph below summarizes their answers.
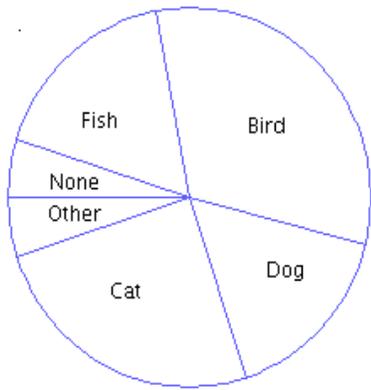
(a) Which category was chosen by approximately one-fourth of the community?

(b) Approximately what percentage of the community chose Other or Cat?
Write your answer as a multiple of 10% - that is, $10\%, 20\%, 30\%, \ldots$.

MSTAT003: *Mode of a data set.*

The following list gives the number of pets for each of 15 students.

1, 0, 1, 2, 1, 2, 4, 0, 2, 1, 4, 2, 4, 3, 4.

Find the modes of this data set.

If there is more than one mode, write them separated by commas.
If there is no mode, click on "No mode."

MSTAT055: *Finding the mode and range of a data set.*

Nine people were asked, "How many times have you been on an airplane?" The line plot below gives their responses.
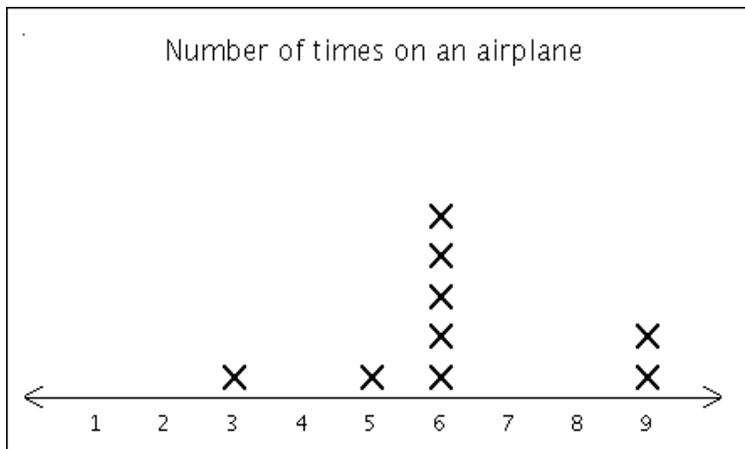
Find the range and the mode for the data.

MSTAT001: *Mean of a data set.*

Each of 6 students reported the number of movies they saw in the past year. Here is what they reported.

17, 17, 18, 14, 14, 8

Find the mean number of movies that the students saw.
If necessary, round your answer to the nearest tenth.

MSTAT028: *Mean and median of a data set.*

A group of 5 students was asked, "How many hours did you watch television last week?" Here are their responses:

18, 13, 15, 13, 10.

Find the median and mean number of hours for these students.

If necessary, round your answers to the nearest tenth.

MSTAT053: *Choosing the best measure to describe data.*

Answer the questions below.

(a) A reporter has recorded the rating (G, PG, PG–13, or R) of each movie played in a theater over the past year.		
○ Mean	○ Median	○ Mode
(b) In Prof. Evans's class, the 10 students had the following scores on the last midterm: 126, 127, 130, 131, 132, 134, 137, 138, 139, 143. Which measure should be used to summarize the data?		
○ Mean	○ Median	○ Mode
(c) The 9 members of the dance team each bought new shoes. Here are the prices they paid: $51, $52, $53, $54, $56, $57, $63, $64, $96. Which measure should be used to summarize the data?		
○ Mean	○ Median	○ Mode

MSTAT031: *Interpreting a stem-and-leaf plot.*

The stem-and-leaf plot below gives the amount of money spent by each of 17 couples at a restaurant. Use the plot to answer the questions that follow.

Amount of money spent (in dollars)

```
3 | 2 5
4 | 2 4 5
5 | 1 4 5 7 8 9
6 | 2 6
7 | 0 1 2 8
```
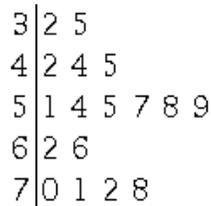
Key: $3|2$ means 32 dollars.

(a) What was the least amount spent in the 40s?
(b) What was the least amount spent overall?
(c) How many couples spent an amount in the 70s?

* ~~MSTAT027:~~ *Using back-to-back stem-and-leaf plots to compare data sets.*

The stem-and-leaf plot below gives the number of minutes that customers waited for their orders at two different restaurants. There are 14 wait times recorded for the first restaurant and 21 recorded for the second. Use the plot to answer the following questions.

Number of minutes customers waited

First restaurant		Second restaurant
9 5	0	5 6 7
7 3 3 1 0	1	5 8 9
4 3 2	2	1 2 4 4 5 5 7 9
7 6 0 0	3	0 1 1 3
	4	1 1 3

Key: 5 ← 5 | 0 | 5 → 5
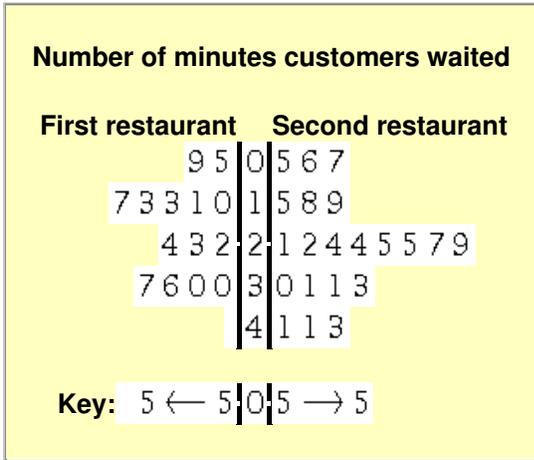
(a) What is the range of wait times for each restaurant?
(b) Which restaurant has the larger median wait time?
(c) Which restaurant has more wait times from 10 to 19 minutes?

* ~~MSTAT006:~~ *Box-and-whisker plots.*

Here are the scores of 17 students on a science test.

59, 60, 61, 62, 67, 69, 69, 70, 71, 76, 77, 80, 81, 81, 85, 87, 91.

Notice that the scores are ordered from least to greatest.

Make a box-and-whisker plot for the data.
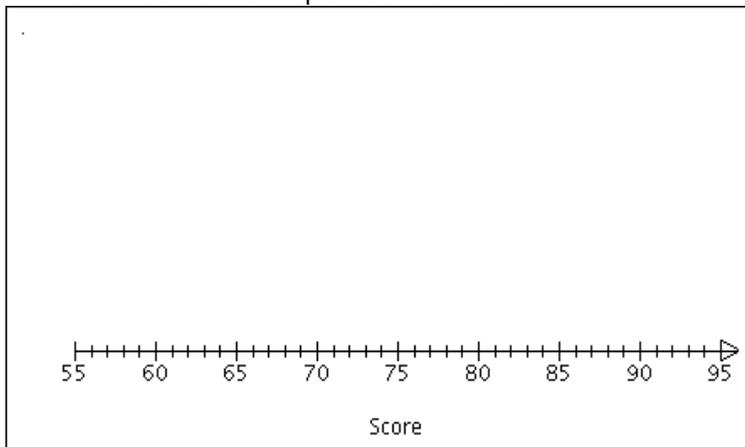
MSTAT029: *How changing a value affects the mean and median.*

The numbers of students in the 10 schools in a district are given below. (Note that these are already ordered from least to greatest.)

190, 245, 246, 283, 287, 325, 331, 360, 367, 386.

Suppose that the number 386 from this list changes to 366 . Answer the following.

(a) What happens to the mean?	○ It decreases by ▯
	○ It increases by ▯
	○ It stays the same
(b) What happens to the median?	○ It decreases by ▯
	○ It increases by ▯
	○ It stays the same

STAT803: *Finding the value for a new score that will yield a given mean.*

Lisa has scored $73, 83, 71, 95,$ and 58 on her previous five tests. What score does she need on her next test so that her average (mean) is 75 ?

* ~~MSTAT025:~~ *Finding if a question can be answered by the data.*

Mr. Smith has 32 boys and 37 girls in his class. Recently, he took some students from his class on a field trip. Of the 32 boys in the class, $\dfrac{7}{8}$ went on the trip. Use this information to answer the questions given below, if possible. If not enough information is given to answer a question, click on "Not enough information."

   (a) How many boys from Mr. Smith's class went on the field trip?

   (b) How many girls from Mr. Smith's class went on the field trip?

   (c) How many boys from Mr. Smith's class did not go on the field trip?

ARITH663: *Introduction to ratios.*

There are 11 apples in a basket. 9 of these apples are green. The rest of them are red.

   (a) What is the ratio of red apples to green apples?

   (b) What is the ratio of all apples in the basket to red apples?

ARITH228: *Basic word problem on rates.*

   (a) Sung bought 21 pounds of sugar for $\$11$. How many dollars did he pay per pound of sugar?

   (b) A color printer prints 33 pages in 12 minutes. How many pages does it print per minute?

If necessary, round your answers to the nearest hundredth.

ALGE272: *Solving a proportion: Basic.*

Solve the following proportion for v.

$$\frac{7}{17} = \frac{5}{v}$$

Round your answer to the nearest tenth.

ARITH064: *Simple word problem on proportions.*

Suppose that 21 inches of wire costs 63 cents.
At the same rate, how much (in cents) will 46 inches of wire cost?

ARITH610: *Word problem on proportions: Problem type 1.*

A machine produces 225 bolts in 20 minutes. At the same rate, how many bolts would be produced in 36 minutes?

ARITH674: *Introduction to percent.*

The figure below is divided into 100 squares of equal size.

What percent of the figure is shaded?
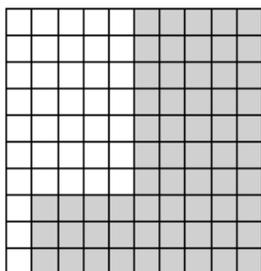
ARITH226: *Converting between percentages and decimals.*

   (a) Write 0.427 as a percentage.

   (b) Write 8.3% as a decimal.

ARITH090: *Converting a percentage to a fraction.*

Write 95% as a fraction in simplest form.

ARITH002: *Converting a fraction to a percentage.*

Write $\dfrac{35}{50}$ as a percentage.

ARITH030: *Percentage of a whole number.*

What is 90% of 39?

Give your answer as a decimal number.

ARITH069: *Writing a ratio as a percentage.*

Felipe spent a total of $50 at the grocery store. Of this amount, he spent $30 on fruit. What percentage of the total did he spend on fruit?

* **ARITH698:** *Applying the percent equation.*

81 is what percent of 32.4?

ARITH074: *Word problem on percentage: Problem type 1.*

An item regularly priced at $25 is on sale at a discount of 20% . What is the sale price of the item?

ARITH225: *Word problem on percentage: Problem type 3.*

The price of a gallon of unleaded gas was $2.85 yesterday. Today, the price fell to $2.79. Find the percentage decrease. Round your answer to the nearest tenth of a percent.

ARITH232: *Simple interest.*

Salma deposits $300 into an account that pays simple interest at a rate of 5% per year. How much interest will she be paid in the first 4 years?

* **MSTAT049:** *Computing a percentage from a table of values .*

In a survey, 300 people were asked if they smoke and whether or not they exercise regularly (more than twice a week). The results are summarized in the table below.

	Smoke	Do not smoke
Exercise regularly	12	60
Do not exercise regularly	48	180

(a) What percentage of the people do *not* exercise regularly?

(b) What percentage of the people do *not* smoke?

*** ~~GEOM814:~~** *Angle measures in circle graphs.*

In a recent election, there were six candidates and 5100 total votes. The table below summarizes the vote percentages by candidate. This information is also presented as a circle graph.

Find the central angle measure, x°, for the Watkins slice in the circle graph. Do not round.

Candidate	Percentage of Votes
Mendez	26%
Watkins	11%
Choi	24%
Nguyen	21%
DeWitt	7%
Bowerman	11%
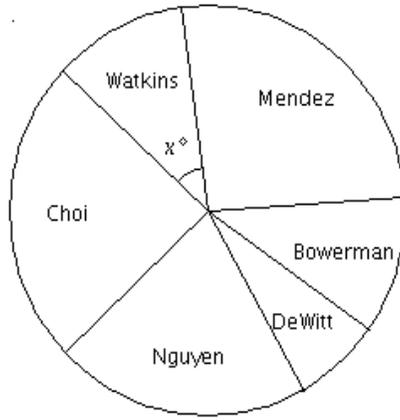
MSTAT041: *Tree diagrams.*

Bob must choose a crust and a topping for his pizza.

> There are three crusts to choose from: thin, pan, and regular.
> There are four toppings to choose from: sausage, onions, pepperoni, and mushrooms.

The tree diagram below shows the possible outcomes. Use the diagram to answer the questions.
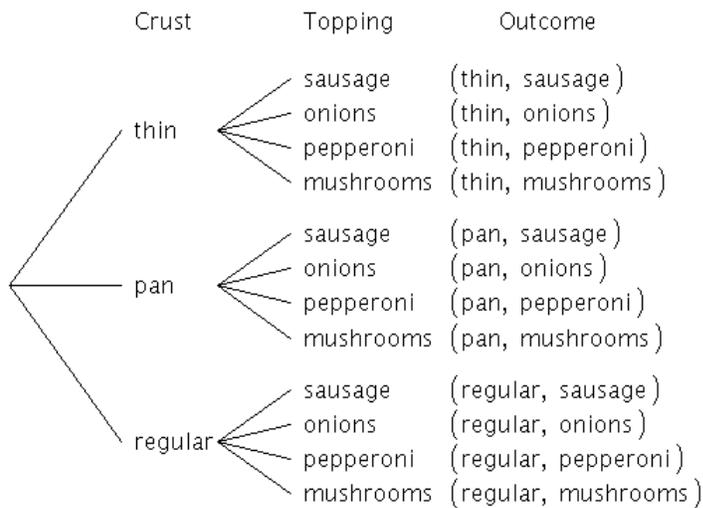
(a) How many outcomes are there?

(b) How many outcomes have both thin crust and mushrooms being chosen?

(c) How many outcomes have pan crust or regular crust being chosen?

MSTAT040: *Introduction to the counting principle.*

Leila is ordering an ice cream dessert. She must order a size and a flavor of ice cream. There are 2 sizes and 4 flavors to choose from. How many different ice cream desserts could she order?

MSTAT015: *Counting principle.*

When ordering the Kids' Lunch at Burger Universe, the customer must choose a size, a type of bun, a side order, and a type of fruit drink.

Here are the possibilities for each choice.

Choice	Possibilities
Size	Junior, Small, Medium, Large
Type of Bun	White Bun, Wheat Bun
Side Order	Fries, Onion Rings, Fruit Cup
Fruit Drink	Orange, Grape

How many Kids' Lunches are possible?

MSTAT008: *Permutations.*

There are 4 swimmers in a race. There will be a first-place and a second-place prize awarded. In how many different ways can the 2 prizes be awarded?

* ~~MSTAT009:~~ *Combinations.*

A company's board of directors wants to form a committee of 2 of its members. There are 5 members to choose from. How many different committees of 2 members could possibly be formed?

STAT106: *Outcomes and event probability.*

A coin is tossed three times. An outcome is represented by a string of the sort HTT (meaning a head on the first toss, followed by two tails). The 8 outcomes are listed in the table below. Note that each outcome has the same probability.

For each of the three events below, check the outcome(s) that are contained in the event. Then, in the last column, enter the probability of the event.

		\multicolumn{8}{c}{Outcomes}	Probability
		HHT	HTH	TTT	HHH	THT	TTH	THH	HTT	
Events	A tail on both the first and the last tosses	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Alternating heads and tails (with either coming first)	☐	☐	☐	☐	☐	☐	☐	☐	☐
	More heads than tails	☐	☐	☐	☐	☐	☐	☐	☐	☐

MSTAT054: *Classifying likelihood.*

For each bag below, describe the likelihood of picking a gray marble.

Picking a gray marble is

- certain
- likely
- unlikely
- impossible

Picking a gray marble is

- certain
- likely
- unlikely
- impossible

Picking a gray marble is

- certain
- likely
- unlikely
- impossible

MSTAT039: *Understanding likelihood.*

There are two bags containing only red and white marbles.

Bag A has 10 white marbles and 10 red marbles.

Bag B has 6 white marbles and 4 red marbles.

A marble is randomly chosen from each bag.
List these events from least likely to most likely.

Event 1: choosing a white marble from Bag A .
Event 2: choosing an orange marble from Bag A .
Event 3: choosing a white marble from Bag B .

Event 4: choosing a white or red marble from Bag B .

Least likely $\longrightarrow$ *Most likely*

Event ☐,   Event ☐,   Event ☐,   Event ☐

MSTAT026: *Introduction to probability of an event.*

A spinner with 8 equally sized slices is shown below. (2 slices are yellow, 3 are red, and 3 are blue.) The dial is spun and stops on a slice at random. What is the probability that the dial stops on a yellow slice?

Write your answer as a fraction in simplest form.

MSTAT010: *Probability of an event.*

A box is filled with 10 blue cards, 6 yellow cards, and 4 green cards. A card is chosen at random from the box. What is the probability that the card is *not* yellow?

Write your answer as a fraction in simplest form.

MSTAT012: *Probability of independent events.*

A die is rolled and a coin is tossed. The die and the coin are fair. What is the probability that the outcome of the roll is a number more than 2 and the outcome of the coin toss is heads? Write your answer as a fraction in lowest terms.

MSTAT013: *Probability of dependent events.*

A radio disc jockey has 8 songs on this upcoming hour's playlist: 2 are rock songs, 2 are reggae songs, and 4 are country songs. The disc jockey randomly chooses the first song to play, and then she randomly chooses the second song from the remaining ones. What is the probability that the first song is a reggae song and the second is a rock song? Write your answer as a fraction in simplest form.

MSTAT046: *Experimental and theoretical probability.*

The spinner below shows 10 equally sized slices (5 yellow, 3 red, and 2 blue). Keiko spun the dial 50 times and got the following results.
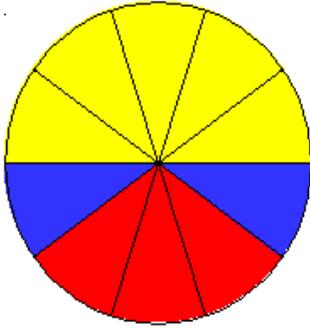
Outcome	Yellow	Red	Blue
Number of Spins	24	15	11

Fill in the table below. Round your answers to the nearest thousandths.

(a) Assuming that the spinner is fair, compute the theoretical probability of landing on yellow.

(b) From Keiko's results, compute the experimental probability of landing on yellow.

(c) Assuming that the spinner is fair, choose the statement below that is true:

- With a small number of spins, it is surprising when the experimental probability is much greater than the theoretical probability.

- With a small number of spins, it is *not* surprising when the experimental probability is much greater than the theoretical probability.

- With a small number of spins, the experimental probability will always be much greater than the theoretical probability.

MSTAT047: *Introduction to expectation.*

Managers of a local shopping mall selected a random sample of shoppers and recorded the gender of each. Here are their results.

Gender	Number of People
Male	61
Female	111

Based on this sample, how many of the next 5000 shoppers would we predict to be female? Round your answer to the nearest whole number. Do not round any intermediate calculations.

MSTAT042: *Venn diagrams with two sets.*

The Venn diagram shows the memberships for the Tennis Club and the Soccer Club.
Use the diagram to answer the questions below.

Tennis Soccer

Melissa
Christine
Sam
Manuel

Jina
Jose
Leila

Carmen
Jessica
Austin
Bob
Isabel
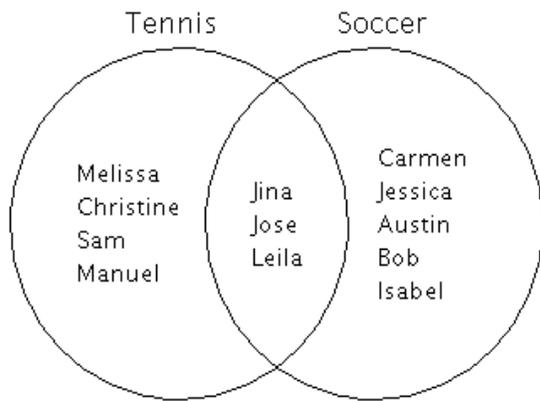
(a) How many people play Soccer?

(b) How many people play both Tennis and Soccer?

(c) How many people play Soccer but not Tennis?

* MSTAT043: *Venn diagrams with three sets.*

The Venn diagram shows the memberships for the Music, Chess, and Art clubs.
Use the diagram to answer the questions below.

Music Chess

Diane

Sam

Boris

Tammy
Kala

Maria

John
Abdul

Mary

Art
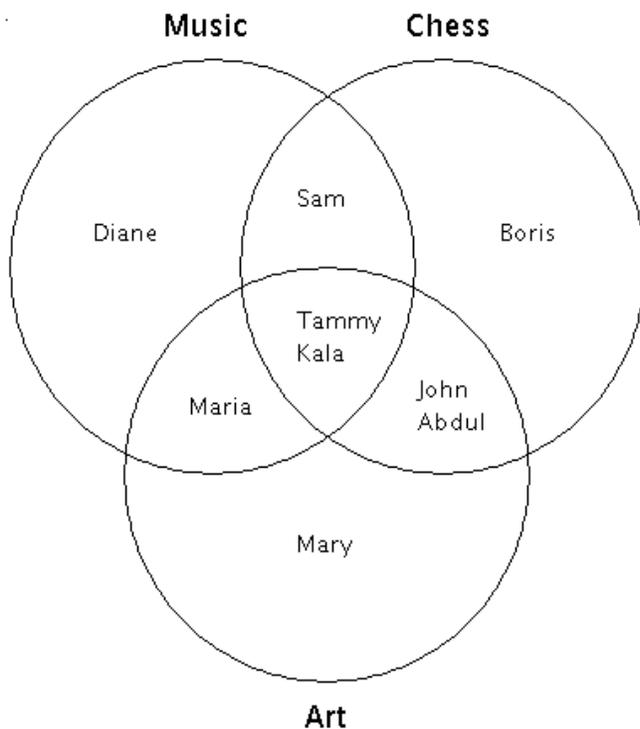
(a) Select all the clubs that Sam is not a member of.

(b) How many students are members of the Music Club but not the Art Club?

(c) Which of these students are in the Chess Club but not any other club?

ARITH699: *Writing a signed number for a real-world situation.*

Fill in the blanks below.

      (a) The temperature fell by 8 degrees Fahrenheit today.
          Write a signed number to represent this temperature change.

            ☐ degrees F

      (b) The temperature was 30 degrees below 0 (in Fahrenheit) today.
          Write a signed number to represent this temperature.

            ☐ degrees F

MSTAT038: *Reading the temperature from a thermometer.*

What temperature does the thermometer show?

$^\circ C$

20 ◇

15 ◇

10 ◇

5 ◇

0 ◇

− 5 ◇

− 10 ◇

− 15 ◇

− 20 ◇

ALGE286: *Plotting integers on a number line.*

Plot 4 , 6 , and -2 on the number line.
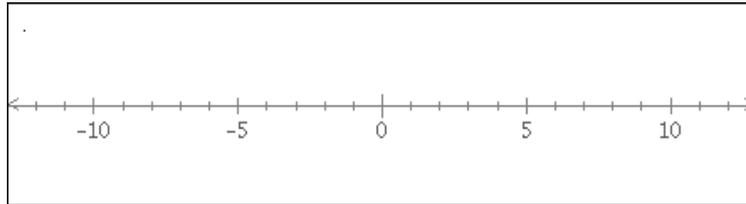
ARITH691: *Ordering integers.*

Use $<$, $>$, or $=$ to compare the following numbers.

$11 \;\square\; 5$

$0 \;\square\; -9$

$-11 \;\square\; -1$

ARITH605: *Plotting rational numbers on a number line.*

Plot the numbers $-2\dfrac{5}{6}$ and $\dfrac{5}{2}$ on the number line below.
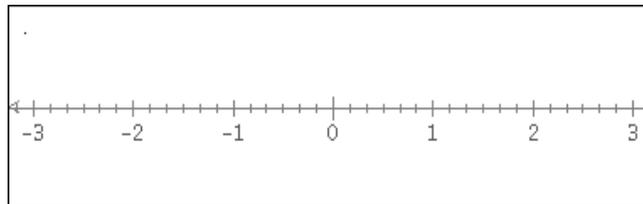
ARITH071: *Absolute value of a number.*

Evaluate the following.

$|-3| \;=$

$|11| \;=$

ARITH200: *Integer addition: Problem type 1.*

Add.

$-1+2 \;=$

$-1+(-3) \;=$

ARITH108: *Integer addition: Problem type 2.*

Add.

$$55 + (-36) =$$

$$-27 + (-60) =$$

ARITH688: *Integer subtraction: Problem type 1.*

Subtract.

$$-5 - 1 = \boxed{}$$

$$4 - 6 = \boxed{}$$

ARITH689: *Integer subtraction: Problem type 2.*

Subtract.

$$2 - (-2) = \boxed{}$$

$$-10 - (-5) = \boxed{}$$

ARITH690: *Integer subtraction: Problem type 3.*

Subtract.

$$28 - 41 = \boxed{}$$

$$-12 - (-3) = \boxed{}$$

ARITH701: *Word problem with addition or subtraction of integers.*

Miguel is riding in a bike race that goes through a valley and a nearby mountain range.

The table gives the altitude (in feet above sea level) for the five checkpoints in the race.
Use the table to answer the questions.

Checkpoint	Altitude (feet above sea level)
1	3,319
2	−93
3	704
4	−165
5	2,593

(a) The top of a hill rises 338 feet above Checkpoint 4.
What is the altitude of the top of the hill?

☐ ft

(b) How much lower is Checkpoint 4 than Checkpoint 2?

☐ ft lower

ARITH231: *Integer multiplication and division.*

Evaluate the following.

$$-7 \times (-6) = \boxed{}$$

$$6 \div (-3) = \boxed{}$$

ARITH118: *Mixed arithmetic operations with integers.*

Evaluate $5 - (-5) \times 7$.

* **ARITH116:** *Simple addition and subtraction of signed fractions.*

Add.

$$-\frac{1}{4} + \frac{3}{5}$$

Write your answer as a fraction in simplest form.

* **ARITH106:** *Signed fraction addition.*

Subtract.

$$\frac{7}{-6} - \frac{6}{7}$$

Write your answer as a fraction in simplest form.

* **ARITH105:** *Signed fraction multiplication.*

Multiply.

$$\frac{-1}{-5} \times 5 \times \frac{-1}{7}$$

Write your answer as a fraction in simplest form.

* **ARITH117:** *Simple addition and subtraction of signed decimals.*

Compute.

$$1.9 - 6 = \square$$
$$-7.6 - 2 = \square$$

* **ARITH234:** *Signed decimal addition.*

Compute.

$$11 - 14.3 - 13.9$$

ALGE001: *Integers and rational numbers.*

Classify each number below as an integer or not.

	Integer?	
	Yes	No
$\frac{12}{4}$	○	○
61	○	○
-87.6	○	○
-28	○	○
$\frac{16}{5}$	○	○

ALGE606: *Distributive property: Basic.*

Use the distributive property to remove the parentheses from the following expression:

$$3(3+u) .$$

* ~~**ALGE607:**~~ *Combining like terms: Basic.*

Simplify the following expression:

$$10y+y .$$

ALGE284: *Evaluating a simple algebraic expression: Problem type 1.*

Evaluate

$$13-p$$

for $p = 4$.

ALGE683: *Evaluating a simple algebraic expression: Problem type 2.*

Evaluate

$$8 \times c$$

for $c = 4$.

ALGE285: *Evaluating a simple algebraic expression: Problem type 3.*

Evaluate

$$b+7a$$

for $a = 5$ and $b = 4$.

ALGE733: *Writing simple variable expressions.*

A sports tournament has k teams. Each team has 8 players. Using k , write an expression for the total number of players in the tournament.

ALGE602: *Writing a mathematical expression.*

Write an algebraic expression to answer the question below.

How many months are there in y years?

ALGE005: *Evaluation of a linear expression in two variables.*

Evaluate the expression when $b = -5$ and $c = 4$.

$$-7c + b$$

* ~~ALGE187:~~ *Properties of addition.*

The properties of addition are:

      [1] Commutative Property
      [2] Associative Property
      [3] Additive Identity Property
      [4] Additive Inverse Property

For each equation below, indicate the property that justifies the equation by filling in the box with the appropriate number.

$$2 + (6 + a) = (2 + 6) + a \qquad [\ ]$$
$$7 + (2 + y) = (2 + y) + 7 \qquad [\ ]$$
$$3 + (-3) = 0 \qquad [\ ]$$

* ~~ALGE188:~~ *Properties of real numbers.*

Consider the following properties of real numbers:

      [1] Commutative Property of Addition   [6] Commutative Property of Multiplication
      [2] Associative Property of Addition   [7] Associative Property of Multiplication
      [3] Additive Identity Property   [8] Multiplicative Identity Property
      [4] Additive Inverse Property   [9] Multiplicative Inverse Property
      [5] Distributive Property   [10] Multiplication Property of Zero

For each equation below, indicate the property that justifies the equation by filling in the box with the appropriate number.

$$b + (d + 7) = (b + d) + 7 \qquad [\ ]$$

$$9(7 + d) = 9 \cdot 7 + 9d \qquad [\ ]$$

$$0 \cdot \frac{2}{5} = 0 \qquad [\ ]$$

$$0 = -b + b \qquad [\ ]$$

ALGE009: *Additive property of equality: Problem type 1.*

Solve for y.

$$y - 4 = 9$$

ALGE800: *Additive property of equality with decimals.*

Solve for x.

$$x - 8.78 = 1.82$$

ALGE801: *Additive property of equality with fractions.*

Solve for x.

$$x + \frac{1}{2} = 5$$

ALGE010: *Additive property of equality: Problem type 2.*

Solve for z.

$$-9 = z + 8$$

ALGE813: *Solving simple equations with multiplication or division.*

Solve for a.

$$a \div 4 = 4$$

ALGE008: *Multiplicative property of equality: Problem type 1.*

Solve for t.

$$\frac{t}{3} = 69$$

Simplify your answer as much as possible.

ALGE802: *Multiplicative property of equality with fractions.*

Tim needs to memorize words on a vocabulary list for German class. He has memorized 24 of the words, which is two-thirds of the list. How many words are on his list?

ALGE797: *Multiplicative property of equality: Problem type 3.*

Solve for t.

$$-57 = \frac{t}{3}$$

Simplify your answer as much as possible.

ALGE803: *Using two steps to solve an equation.*

Solve the following equation for s.

$$\frac{s}{3} + 11 = 22$$

Simplify your answer as much as possible.

* ALGE006: *Solving a linear equation: Problem type 1.*

Solve the following equation for y:

$$4y + 4 = 16 \ .$$

Simplify your answer as much as possible.

ALGE015: *Writing an inequality.*

Write the algebraic expression for the following sentence.

a *is less than or equal to* 3 .

ALGE019: *Solving a linear inequality: Problem type 1.*
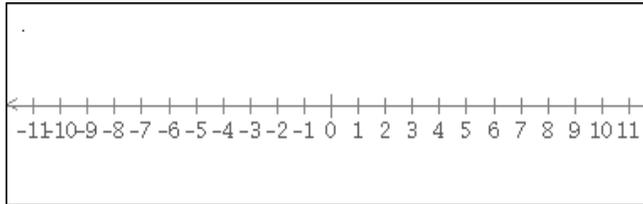
Solve the inequality for t.

$$t + 10 \geq 11$$

Simplify your answer as much as possible.

ALGE017: *Graphing a linear inequality on the number line.*

Graph the inequality below on the number line.

$$b \leq 4$$

ALGE016: *Translating sentences into equations.*

Translate this sentence into an equation.

14 more than Vidya's score is 61 .

Use the variable v to represent Vidya's score.

ALGE281: *Function tables with one-step rules.*

Use this rule to fill in the table.

Rule: Add 6 to the input to get the output.

Add 6 →

Input	Output
3	☐
5	☐
☐	13

ALGE282: *Function tables with two-step rules.*

Fill in the table using this function rule.

$y = 4x + 1$

x	y
6	☐
7	☐
8	☐
10	☐

MSTAT061: *Describing data patterns.*

Yoko drove to and from work each day last week.
The table below gives the amount of gas in her tank after each day.

Monday	12 gallons

Tuesday	10 gallons
Wednesday	8 gallons
Thursday	6 gallons
Friday	4 gallons

Fill in the blanks below.

With each additional day, the amount in the tank (increased, decreased) by ☐ gallons.
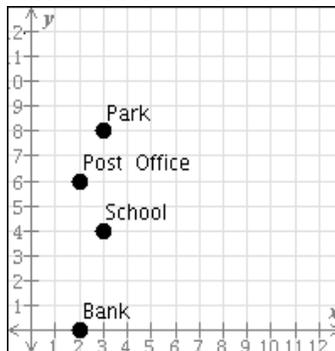
FUN005: *Finding a function rule: Problem type 1.*

Below is the table of values of a function. Write the output when the input is n .

input	1	6	8	n
output	3	8	10	☐

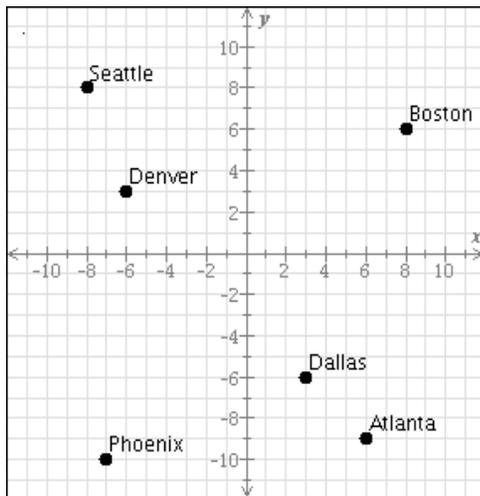**ALGE278:** *Reading a point in quadrant 1.*

Write an ordered pair for the location of the Post Office.

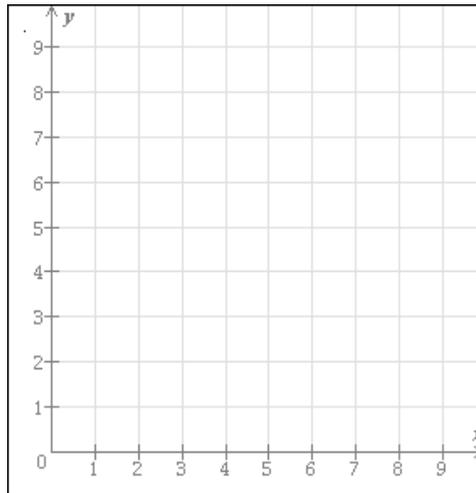$$(x, y) = (\square, \square)$$

ALGE064: *Reading a point in the coordinate plane.*

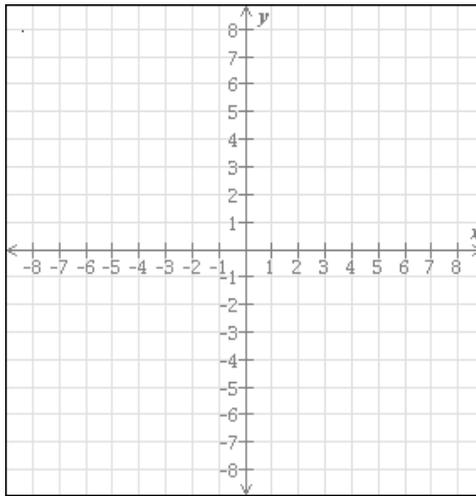Give the location of Dallas as an ordered pair (x, y) .

ALGE279: *Plotting a point in quadrant 1.*

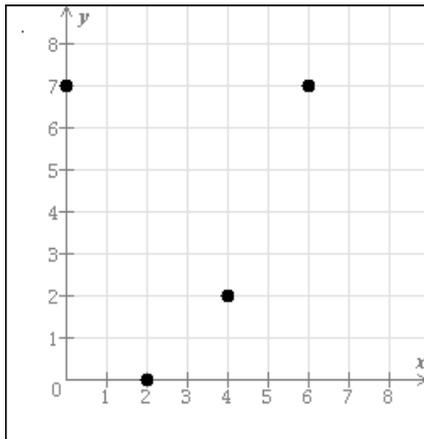Using the pencil, plot the point $(2, 5)$.

ALGE067: *Plotting a point in the coordinate plane.*

Using the pencil, plot the point $(-1, -6)$.

* ~~ALGE283:~~ *Graphing whole number functions.*

The graph of a function is shown below. Fill in the table for this function.

input	output
4	[ ]
6	[ ]
2	[ ]
0	[ ]

ALGE066: *Solutions to a linear equation in two variables: Problem type 1.*
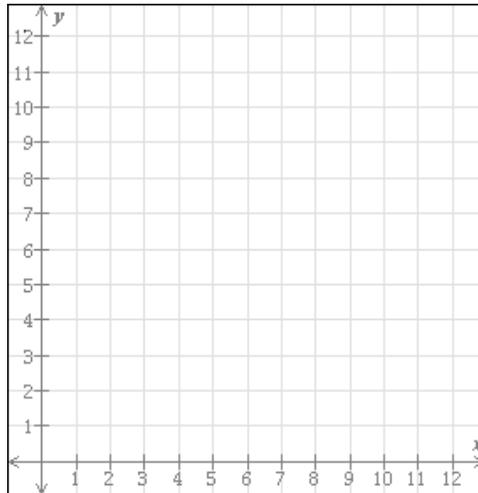
Give an ordered pair (u, v) of numbers that satisfy the equation

$$5u - v = 1 .$$

ALGE280: *Graphing a line in quadrant 1.*
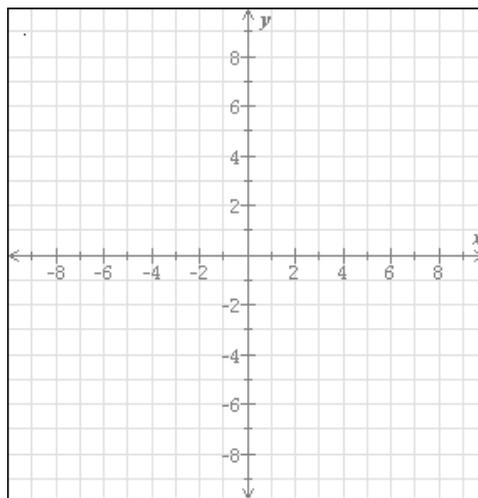
Graph the line with this equation.

$y = 4x$

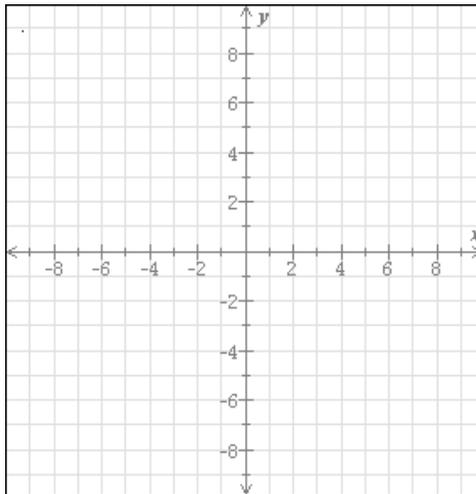* **ALGE194:** *Graphing a line given its equation in slope-intercept form.*
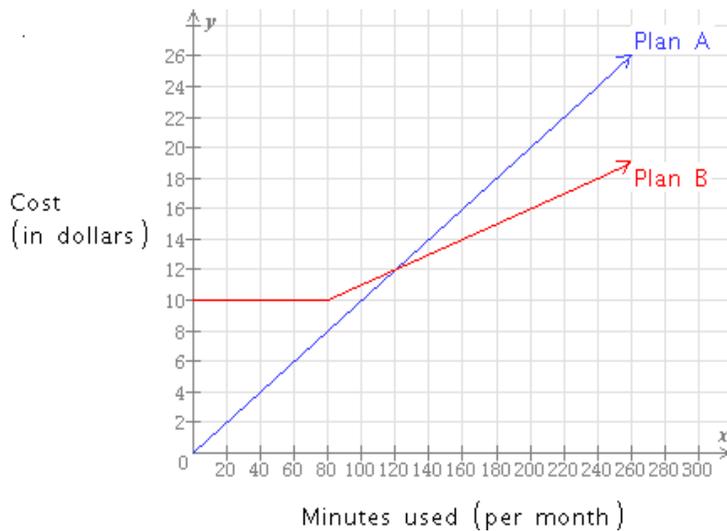
Graph the line.

$y = 2x + 4$

* **ALGE198:** *Graphing a vertical or horizontal line.*

Graph the line $x = -6$.

* ~~ALGE263:~~ *Interpreting the graphs of two functions.*

Ryan can choose to use Plan A or Plan B for his long distance charges. For each plan, cost (in dollars) is a function of minutes used (per month) as shown below.

a. If Ryan makes 80 minutes of long distance calls for the month, which plan costs more? How much more does it cost than the other plan?
b. For what number of long distance minutes do the two plans cost the same? If the time spent on long distance calls is more than this amount, which plan costs less?

ARITH233: *Introduction to exponents.*

Evaluate.

2^3

ARITH692: *Writing expressions using exponents.*

Rewrite $4 \times 4 \times 4$ using an exponent.

ARITH693: *Order of operations with whole numbers and exponents.*

Evaluate.

$$48 + 64 \div 2^4$$

ARITH683: *Powers of 10: Positive exponent.*

Evaluate.

$$10^4$$

* ~~ARITH684:~~ *Powers of 10: Negative exponent.*

Evaluate.

$$10^{-5}$$

ARITH036: *Scientific notation with positive exponent.*

Write 8.23×10^3 in standard notation.

* ~~ARITH037:~~ *Scientific notation with negative exponent.*

Write 3.13×10^{-4} in standard notation.

ARITH702: *Exponents and integers: Problem type 1.*

Evaluate.

$$(-7)^3 = \boxed{}$$
$$(-5)^2 = \boxed{}$$

* ~~ARITH600:~~ *Exponents and order of operations.*

Evaluate.

$$-\left(2 \cdot (-1)\right)^3 + 3 - 1^3$$

* **~~ALGE004:~~** *Evaluation of a polynomial in one variable.*

Evaluate the expression

$$n^2 - 9n - 8$$

when $n = 6$.

Simplify your answer as much as possible.

* **~~ARITH029:~~** *Ordering numbers with positive exponents.*

Order the expressions by choosing $>$, $<$, or $=$.

$$3^4 \times 3^3 \ \square \ 3^{12}$$
$$3^3 \times 4^3 \ \square \ 12^4$$
$$3^4 \times 4^3 \ \square \ 12^3$$

ARITH016: *Square root of a perfect square.*

What number is equal to $\sqrt{49}$?

* **~~ARITH602:~~** *Estimating a square root.*

Find two consecutive whole numbers that $\sqrt{72.4}$ lies between.

* ~~Item~~: ALEKS item that is available in this course product, but is deleted in the default mode.