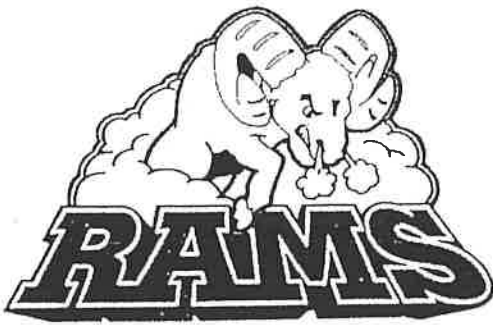


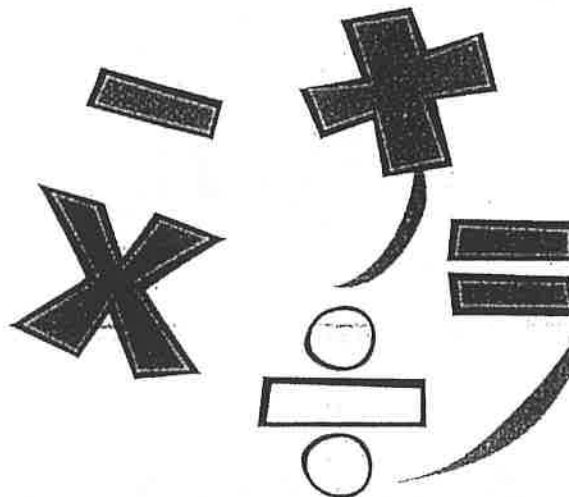
NAME \_\_\_\_\_

SCHOOL \_\_\_\_\_



# SUMMER MATH REVIEW PACKET

FOR INCOMING PRE-AP 7<sup>TH</sup> GRADERS



# THINGS YOU SHOULD KNOW:

## CONVERSIONS:

100 centimeters = 1 meter

12 inches = 1 foot

3 feet = 1 yard

8 ounces = 1 cup

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

## FORMULAS:

Area of squares and

rectangles :  $A = l \cdot w$

Volume of rectangular

prisms :  $V = l \cdot w \cdot h$

## FRACTIONS:

To find a common denominator, find the least common multiple of the denominators in the problem.

## ORDER OF OPERATIONS:

**P** : Parenthesis

**E** : Exponents

**MD** : Multiplication OR

Division (from left to right)

**AS** : Addition OR

Subtraction (from left to right)

## DECIMALS:

Line up decimals when adding and subtracting.

Count decimal places when multiplying.



# the NUMBER LINE

Estimate the location of each number.

-2.4		5.5	
-4		$1\frac{3}{4}$	
$-\frac{1}{2}$		-2	
$6\frac{3}{4}$		$\frac{3}{4}$	
-3		3	

# GCF & LCM

Find the GCF and/or LCM.

Find the GCF. 44 & 14	Find the GCF and LCM. 5 & 8 GCF : _____ LCM : _____	Find the GCF. 20 & 15
Find the GCF and LCM. 4 & 6 GCF : _____ LCM : _____	Find the GCF. 30 & 40 GCF : _____ LCM : _____	Find the GCF and LCM. 16 & 6 GCF : _____ LCM : _____
Find the LCM. 4, 21, 24	Find the GCF and LCM. 12 & 4 GCF : _____ LCM : _____	Find the LCM. 3 & 5
Find the GCF and LCM. 30 & 6 GCF : _____ LCM : _____	Find the LCM. 4, 21, 24 GCF : _____ LCM : _____	Find the GCF and LCM. 6 & 12 GCF : _____ LCM : _____

# ORDER of OPERATIONS

Simplify each expression.

$260 - (2 \cdot 4)^2 - 9$	$2[3^2 + 2(5 - 1)]$	$10 + (6 \div 2)^3 - 4$	$6^2 + 2[5^2 + (2 \cdot 3)]$
$6(2 + 3) - 3^3$	$5^2 + 3[2(5 + 4)^4 - 2]$	$(2 \cdot 5)^2 - 10$	$8^2 - 2[4 - 2(2)]$
$2^4 + 14 \cdot 2 \div 4$	$9^2 \div 3^3 \cdot (8 - 5)^2$	$\frac{(5 + 3)^2}{6 - 2}$	$4^3 - 2(9)$
$2^3 + 2(3 \cdot 4)$	$40 \div 2^2 \cdot (4 - 2)^3$	$(16 - 4)^2 \cdot 4 + 3^2$	$10^2 - 2[2(3 \cdot 2)]$

# INTEGERS IN THE REAL WORLD

Write an integer to represent each situation.

A loss of 14 pounds.	A bird flying 42 feet in the air.	A fish swimming 23 feet below the surface of the water.	A drop of 30 degrees.
A dog is 2.3 pounds overweight.	Mr. Brown is \$2,000 in debt.	A car is parked 52 feet down in an underground garage.	Brett climbed 11 feet up a ladder.
Workers dug down 15 feet to start building a home.	The price of a movie increased \$2.50.	A coupon was used for \$20 off.	A bank withdraw of \$40.
A bank deposit of \$240.	Barbara spent \$65 on groceries.	A scuba diver ascended 10 feet.	The depth of snow went from 2 inches to 6 inches.

# add & subtract fractions

Find each sum or difference.

$$\frac{1}{2} + 6\frac{2}{3}$$

$$\frac{5}{8} + 2$$

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

$$10\frac{4}{5} - 3\frac{1}{2}$$

$$3\frac{1}{4} + 4\frac{1}{2}$$

$$9\frac{1}{3} + 4\frac{5}{6}$$

$$8\frac{2}{3} - 5\frac{1}{5}$$

$$4\frac{5}{6} - 1\frac{1}{8}$$

Jake ran  $3\frac{1}{2}$  miles Saturday and  $4\frac{5}{6}$  miles Sunday. How far did he run over the weekend?

Wayne ran  $3\frac{1}{2}$  miles out of a  $9\frac{2}{3}$  mile race. How much further does he have left to run?

# MULTIPLYING fractions

Find each product.



$\frac{2}{5} \cdot \frac{7}{10}$	$\frac{2}{3} \cdot 8$	$\frac{7}{8} \div 2$	$\frac{9}{10} \div 4$
$3\frac{1}{2} \cdot 4$	$6\frac{1}{8} \cdot 2\frac{1}{2}$	$9\frac{1}{3} \div 3$	$5\frac{2}{5} \div 2$
$8\frac{1}{3} \cdot 2\frac{1}{4}$	$3\frac{3}{5} \cdot 6\frac{1}{5}$	A $12\frac{1}{5}$ inch long piece of ribbon is cut into 4 pieces. How long is each piece?	
You ran $4\frac{1}{2}$ times around a $2\frac{1}{4}$ mile track. How far did you run?		A $12\frac{2}{3}$ pound bag of chocolate is split equally among 20 boxes. How much chocolate is in each box?	

# dividing fractions

Find each quotient.



$$\frac{2}{5} \div 8$$

$$\frac{5}{6} \div 4$$

$$\frac{7}{8} \div 2$$

$$\frac{9}{10} \div 4$$

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

$$6\frac{1}{5} \div 2$$

$$9\frac{1}{3} \div 3$$

$$5\frac{2}{5} \div 2$$

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

$$\frac{7}{10} \div \frac{1}{3}$$

$$10\frac{1}{4} \div \frac{2}{5}$$

$$\frac{11}{12} \div \frac{1}{6}$$

A  $4\frac{9}{10}$  foot long piece of wood is cut into 6 sections. How long is each section?

You split  $8\frac{1}{2}$  pounds of strawberries equally among 5 containers. How many pounds of strawberries are in each container?



Name \_\_\_\_\_ Date \_\_\_\_\_

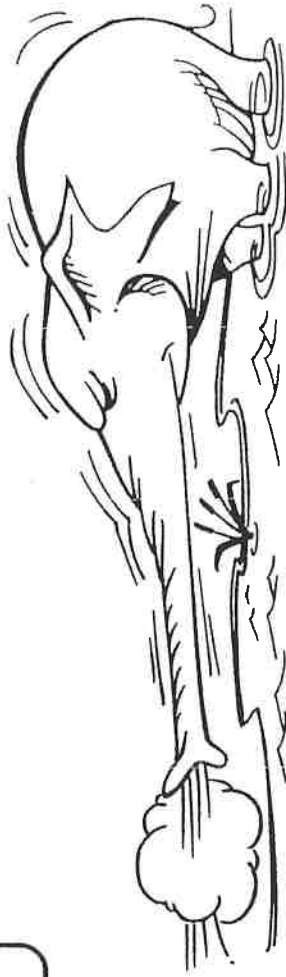


## Equivalent Fractions



How many days did the longest sneezing fit last?

Shade in the boxes that contain equivalent fractions to get the answer.



$\frac{14}{16} = \frac{7}{8}$	$\frac{5}{6} = \frac{20}{24}$	$\frac{4}{10} = \frac{2}{5}$	$\frac{2}{11} = \frac{10}{44}$	$\frac{5}{9} = \frac{10}{18}$	$\frac{4}{16} = \frac{1}{4}$	$\frac{8}{12} = \frac{2}{3}$	$\frac{10}{7} = 1\frac{4}{7}$	$\frac{15}{6} = 2\frac{1}{2}$	$\frac{20}{8} = 2\frac{1}{2}$	$\frac{33}{22} = 1\frac{1}{2}$
$\frac{1}{5} = \frac{10}{50}$	$\frac{20}{24} = \frac{2}{13}$	$\frac{3}{7} = \frac{18}{42}$	$\frac{10}{60} = \frac{2}{15}$	$\frac{6}{14} = \frac{3}{8}$	$\frac{16}{42} = \frac{2}{5}$	$\frac{2}{11} = \frac{6}{33}$	$\frac{18}{5} = 3\frac{5}{5}$	$\frac{20}{4} = 5$	$\frac{54}{14} = 3\frac{9}{7}$	$\frac{30}{7} = 4\frac{2}{7}$
$\frac{4}{15} = \frac{16}{60}$	$\frac{32}{100} = \frac{8}{25}$	$\frac{1}{4} = \frac{8}{32}$	$\frac{12}{26} = \frac{3}{8}$	$\frac{4}{10} = \frac{20}{60}$	$\frac{5}{7} = \frac{15}{35}$	$\frac{5}{40} = \frac{1}{8}$	$\frac{48}{14} = 2\frac{3}{7}$	$\frac{49}{21} = 2\frac{1}{3}$	$\frac{35}{28} = 1\frac{1}{4}$	$6 = \frac{18}{3}$
$\frac{10}{35} = \frac{2}{5}$	$\frac{3}{14} = \frac{9}{44}$	$\frac{4}{50} = \frac{2}{25}$	$\frac{1}{2} = \frac{17}{35}$	$\frac{7}{32} = \frac{1}{4}$	$\frac{14}{30} = \frac{2}{5}$	$\frac{3}{7} = \frac{15}{35}$	$\frac{37}{2} = 17\frac{1}{2}$	$\frac{42}{21} = 2$	$\frac{8}{5} = 1\frac{2}{5}$	$\frac{36}{13} = 2\frac{10}{13}$
$\frac{6}{8} = \frac{16}{24}$	$\frac{14}{16} = \frac{3}{4}$	$\frac{12}{30} = \frac{2}{5}$	$\frac{6}{34} = \frac{3}{16}$	$\frac{4}{6} = \frac{8}{14}$	$\frac{3}{4} = \frac{9}{16}$	$\frac{10}{25} = \frac{2}{5}$	$\frac{17}{3} = 3\frac{1}{3}$	$\frac{22}{5} = 4\frac{2}{5}$	$\frac{10}{4} = 2\frac{1}{2}$	$\frac{40}{7} = 5\frac{5}{7}$

# FRACTION WORD PROBLEMS

Read each problem carefully.

$\frac{4}{7}$  of a pizza was eaten. The next day,  $\frac{1}{2}$  of what was left was eaten. How much is left of the original pizza?

Erin brought  $8\frac{1}{2}$  pounds of ham to a party. Ryan brought an additional  $2\frac{3}{5}$  pounds. How much ham was brought to the party?

Yvette ran  $4\frac{7}{8}$  miles. Greg ran  $1\frac{7}{10}$  miles. How much further did Yvette run?

A recipe calls for  $5\frac{1}{3}$  cups of sugar. How much sugar will be needed if the recipe is quadrupled?

Betty is making  $4\frac{1}{2}$  dozen cookies. She needs  $1\frac{7}{8}$  cups of chocolate chips for one dozen cookies. How many cups of chocolate chips does Betty need?

A fish tank holds  $12\frac{3}{5}$  gallons of water. The fish tank is filled  $\frac{7}{8}$  of the way. How much water is in the fish tank?

Liz drank  $\frac{10}{12}$  of a gallon of water yesterday and  $1\frac{1}{3}$  gallons today. How much water has Liz consumed over the last two days?

There are 40 students in an art club.  $\frac{2}{5}$  of the students are females. How many students in the art club are females?

# add & SUBTRACT decimals

Find each sum or difference.

$13.2 + 6.84$

$19.12 + 0.45$

$10.362 - 1.2$

$30.5 - 3.23$

$12.89 + 4.9$

$5.032 + 9.6$

$15.5 - 3$

$16.32 - 8.1$

You buy 2.67 pounds of apples and 4.9 pounds of oranges. How many pounds of fruit did you buy?

You cut a 2.675 foot section from an 8.9 foot piece of wood. How much is left?

Gina has three rolls of ribbon. One roll has 12.6 inches, the second has 18.24 inches long and the last has 19.05 inches of ribbon. How much ribbon does she have?

Travis has a \$20 gift card. He spent \$9.62 and then another \$2.49. How much is left on the gift card?

# MULTIPLY & divide decimals

Find each product or quotient.

$3.2 \cdot 4.6$	$8.9 \cdot 4.1$	$28.3 \div 5.1$	$29.2 \div 4$
$6.12 \cdot 4.3$	$9.86 \cdot 0.2$	$10.35 \div 9$	$30.4 \div 2.8$
$5.82 \cdot 1.6$	$13.45 \cdot 2.2$	A 14.24 pound bag of cheese is split among 5 pizzas. How much cheese is on each pizza?	
Veronica ran 2.5 times around a 4.62 mile course. How far did she run?		A 6.5 foot long piece of wood is cut into 5 sections. How long is each section?	

# decimal word problems

Read each problem carefully.

Emma is 7.8 years old. She is 1.2 times older than Gavin. How old is Gavin?

Eileen had \$2.47 left on her lunch account. She spent \$1.86 today. How much money is now left on her account?

Hank ran 1.6 miles on Monday, 2.08 miles on Tuesday and 3.65 miles on Wednesday. How many miles did he run over the three days?

Christina bought 4.2 pounds of bananas for \$0.49 per pound. How much did she spend on bananas?

Four people split a \$46.80 prize equally. How much does each person get?

Sam and Peter went fishing. Sam caught 12.67 pounds of fish and Sam caught 9.29 pounds of fish. They gave away 2.75 pounds. What is the weight of the fish they have left?

Mr. Johnson purchased 4 pieces of wood for \$1.99 each and 6 pieces for \$3.85 each. How much did he spend on wood?

Emilio makes \$12.75 per hour. How much does he make for working 8.8 hours?

# ORDERING RATIONAL NUMBERS

Put the given numbers in order.

Put the following numbers in order from least to greatest.

0.3, 0.13, 0.32, 0.303

Put the following numbers in order from greatest to least.

6.05, 6.007, 6.5, 6.25

Put the following numbers in order from greatest to least.

8.2, 0.82,  $\frac{4}{5}$ , 0.08

Put the following numbers in order from least to greatest.

$-3\frac{1}{2}$ ,  $2\frac{1}{2}$ ,  $2\frac{10}{11}$ ,  $-2\frac{1}{2}$

Put the following numbers in order from least to greatest.

$-5.2$ , 5.04,  $-5.42$ ,  $-5$ , 5.14

Put the following numbers in order from least to greatest.

$-2$ , 2.2,  $-2.2$ ,  $-2.02$ , 2

Put the following numbers in order from greatest to least.

$-\frac{2}{5}$ , 2.5,  $-0.42$ ,  $-2.2$ , 0.22

Put the following numbers in order from greatest to least.

$\frac{1}{5}$ , 0.02,  $\frac{11}{50}$ , 0.022

# MEASUREMENT CONVERSIONS

Convert each measurement. Round to the nearest tenth.

Convert to inches. {12 feet}	Convert to feet. {5 yards}	Convert to centimeters. {420 meters}
Convert to yards. {30 feet}	Convert to inches. {10.5 feet}	Convert to gallons. {28 quarts}
Convert to feet. {8 inches}	Convert to inches. {3.5 yards}	Convert to cups. {2 quarts}
Convert to gallons. {12 quarts}	Convert to feet. {11 yards}	Convert to cups. {7 pints}
Convert to yards. {40 inches}	Convert to inches. {30 feet}	Convert to meters. {150 centimeters}

# Unit Rate

Determine each unit rate.



lbs.	Total Cost (\$)
0	0
1	3
2	6
3	9

Day	# of Guests
1	100
2	200
3	300
4	400

Day	Cupcakes Sold
0	0
1	2
2	4
3	6

lbs.	Total Cost (\$)
0	0
2	3
4	6
6	9

Day	Tickets Sold
1	30
2	60
3	90
4	120

Boxes	Cost (\$)
0	0
2	10
4	20
6	30

Day	Cookies Made
0	0
3	30
6	60
9	90

Bags	Total Cost (\$)
1	5
2	10
3	15
4	20

Kids	Total Spent (\$)
10	20
20	40
30	60
40	80

Kids	Teachers
5	1
10	2
15	3
20	4

lbs.	Total Cost (\$)
0	0
4	2
8	4
12	6

Day	Number Sold
0	0
5	40
10	80
15	120



# Unit Rate

Determine each unit rate.



\$4.50 for 2 gallons of gas.	\$14.80 for 4 pounds of fruit.	145 miles on 9 gallons of gas.	\$25 for seven tickets.
\$14 for 6 drinks.	11 miles in 45 minutes.	918 miles in 18 hours.	240 t-shirts made in 9 hours.
210 donuts can be made in 10 hours. How many can be made in 3 hours?		An airplane travels 475 miles in 5 hours. How far will the airplane travel in 9 hours?	
You bought 11 books for \$42.35. How much would 15 books cost?		In 9 hours, 2 inches of rain fell. At this rate, how many inches would fall in 12 hours?	

# evaluating expressions

Read each problem carefully.

<p>If <math>x = 4</math>, evaluate:</p> $4x - 8$	<p>If <math>x = -4</math>, evaluate:</p> $-3 - x$	<p>If <math>x = \frac{1}{2}</math>, evaluate:</p> $6(x + 2)$
<p>If <math>x = 2.5</math>, evaluate:</p> $x - 6$	<p>If <math>x = 10</math>, evaluate:</p> $2(-x + 5)$	<p>If <math>x = -\frac{1}{4}</math>, evaluate:</p> $\frac{3}{4}x$
<p>If <math>x = -3</math>, evaluate:</p> $3 + x - 5x$	<p>If <math>x = \frac{2}{3}</math>, evaluate: <math>3x + 8</math></p>	<p>If <math>x = -5.5</math>, evaluate:</p> $-8x$
<p>If <math>x = 8.2</math>, evaluate:</p> $-x + 2x$	<p>If <math>x = -1</math>, evaluate:</p> $-2\frac{1}{2}x + \frac{5}{6}$	<p>If <math>x = 0</math>, evaluate:</p> $-2(3x + 8)$

# SOLVING equations

Solve each equation.  
Show your work.



$$3x = 15$$

$$\frac{x}{3} = 45$$

$$x - (-8) = 4$$

$$9 + x = 2$$

$$-1 + x = -3$$

$$-x = 14$$

$$-3x = 18$$

$$\frac{-x}{5} = 20$$

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

$$4\frac{1}{2} + x = 9$$

$$x - 14 = -2$$

$$x + (-3) = -12$$

# Writing Expressions

Write an expression for each situation.

You pay \$1.25 per pound for  $x$  pounds of apples.

Emma weighs 38 pounds. Gavin weighs  $x$  pounds less.

Four friends split an  $\$x$  dinner bill.

There are 15 kids on a bus.  $x$  more get on.

You have  $\$x$  on a gift card and spend \$9.50.

It takes  $x$  days to build a house. 3 weeks have passed.

You buy  $x$  DVDs for \$15 each.

Bill used a \$10 bill to pay for a  $\$x$  cup of coffee.

Nina left an  $\$x$  tip on a \$42.60 lunch bill.

There were 325 students in 6<sup>th</sup> grade last year. There are  $x$  less this year.

A soccer team raised \$4,250 for charity last year. This year they raised  $\$x$  more.

Tim pays a moving company \$50 per hour. They help him move for  $x$  hours.

# measures of central tendency



Show all work.



Ages of children in a camp : 5, 6, 8, 4, 6, 7, 8, 9, 12, 8, 10

Find the mean of the ages.

Find the median age.

Find the range of the ages.

Find the mode of the ages.

Height of seventh graders (inches) : 48, 60, 62, 55, 49, 52, 60, 58

Find the median height.

Find the range of the heights.

Find the mode of the heights.

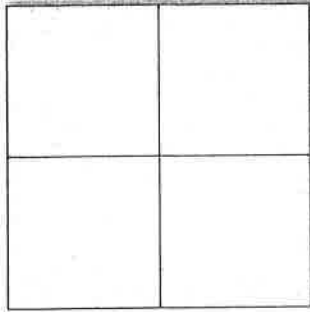
Find the mean height.

# QUADRANTS

Read each problem carefully.



Label each quadrant.



In which quadrant would you find the point (3, 9)?

In which quadrant would you find the point (-4, -4)?

In which quadrant would you find the point (-1, 6)?

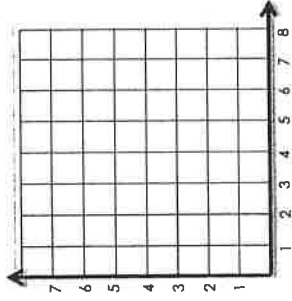
In which quadrant would you find the point (1.2, -4.5)?

# COORDINATE PLANES

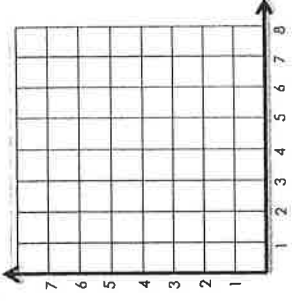


Plot the following points.

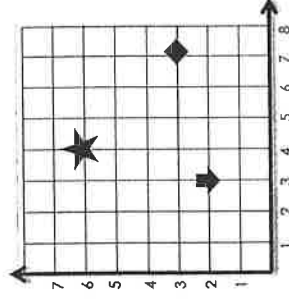
- (2, 3)
- (4, 1)
- (6, 3)
- (4, 5)



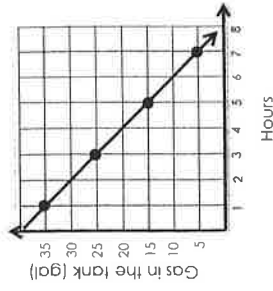
If you start at point (2, 2) and move right 3, then up 5, where do you end up?



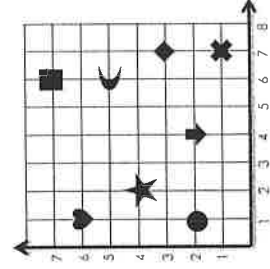
Which shape is closest to the point (2, 5)?



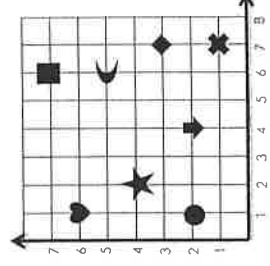
Based on the graph below, how much gas is left in the tank after 4 hours?



What shape is at (6, 7)?



What are the coordinates of the heart?

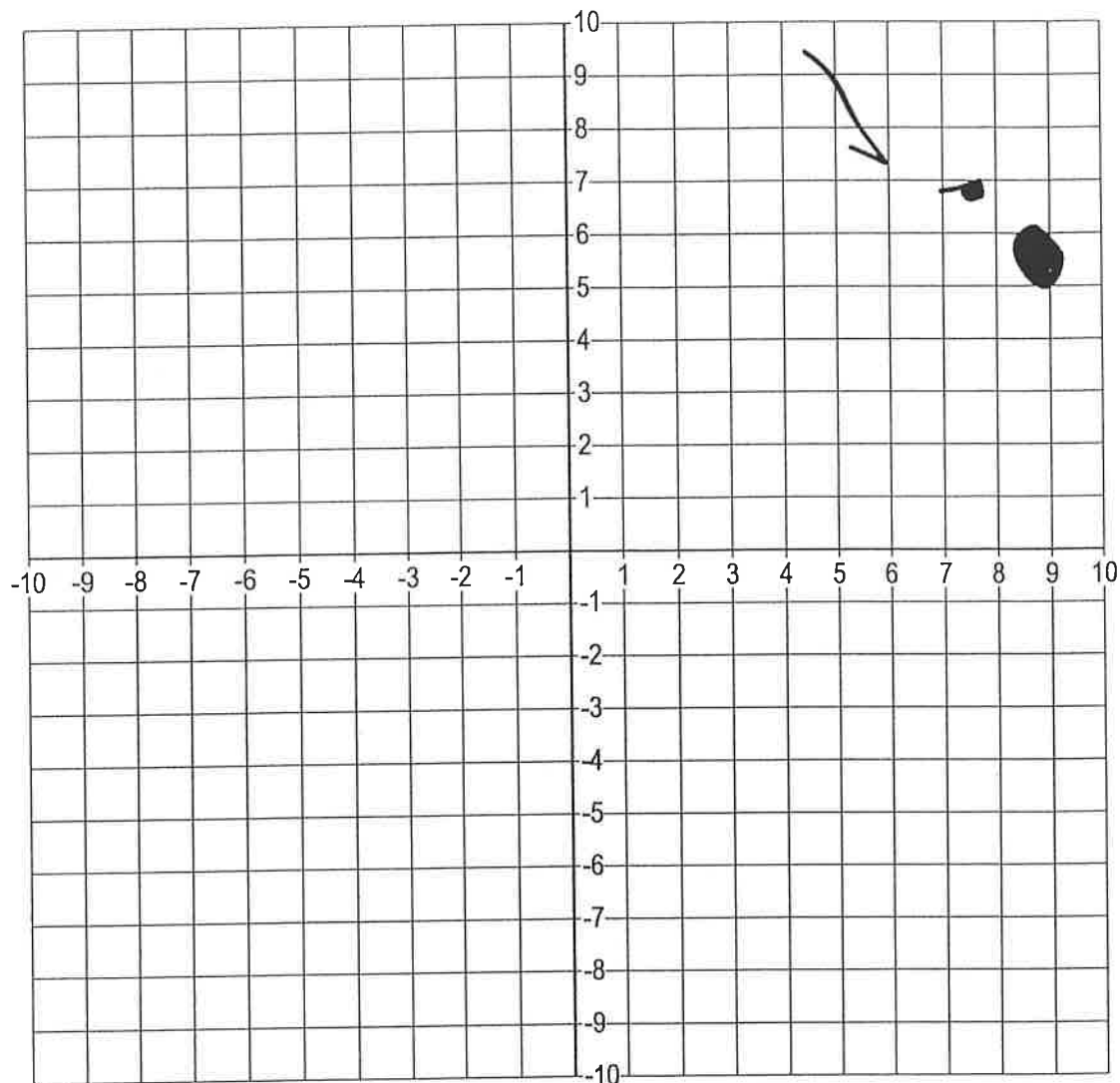


# Coordinate Picture

Name: \_\_\_\_\_ Date: \_\_\_\_\_



There is a picture hidden in this grid. Connect the points with lines to reveal it.



**Line 1:** (5,2), (4,1), (6,-3), (5,-4), (4,-4), (5,-3), (3,1), (3,2), (4,4) **Line 2:** (-4,-2), (-3,-4), (-1,-5), (-1,-9), (5,-10), (6,-9), (0,-8), (0,-5), (1,0), (-1,3) **Line 3:** (3,-1), (3,-7), (7,-7), (8,-8), (2,-8), (2,-5), (1,-4) **Line 4:** (6,-3), (5,0), (7,2), (7,4), (6,5), (9,5), (9,6), (8,7), (7,8), (6,8), (5,10), (4,10), (4,9), (5,8), (4,5), (0,5), (-2,4), (-4,1), (-4,-6), (-5,-7), (-10,-6), (-9,-7), (-4,-8), (-3,-7), (-1,-5) **Line 5:** (0,-5), (2,-3), (3,-1), (4,-1) **Line 6:** (6,1), (7,-3), (6,-4), (5,-4)

Compute the values of  $x$  and  $y$  below. Then write the values as ordered pairs of numbers  $(x, y)$ .

 $x$ 

$(-5) + 1$

$(-2) + (-1)$

$6 - 8$

$(-2) + 2$

$8 + (-6)$

$(-10) + 13$

$3 - (-1)$

$(-4) + 7$

$0 - (-2)$

$12 + (-12)$

$(-4) + 2$

$(-5) - (-2)$

$(-6) + 6$

 $y$ 

$7 + (-7)$

$(-3) + 5$

$(-2) + 6$

$3 - (-1)$

$(-1) + 5$

$(-1) + 3$

$(-10) + 10$

$8 - 10$

$9 - 13$

$2 - 6$

$(-1) + (-3)$

$(-9) - (-7)$

$3 - 3$

A (\_\_\_\_, \_\_\_\_)

B (\_\_\_\_, \_\_\_\_)

C (\_\_\_\_, \_\_\_\_)

D (\_\_\_\_, \_\_\_\_)

E (\_\_\_\_, \_\_\_\_)

F (\_\_\_\_, \_\_\_\_)

G (\_\_\_\_, \_\_\_\_)

H (\_\_\_\_, \_\_\_\_)

I (\_\_\_\_, \_\_\_\_)

J (\_\_\_\_, \_\_\_\_)

K (\_\_\_\_, \_\_\_\_)

L (\_\_\_\_, \_\_\_\_)

M (\_\_\_\_, \_\_\_\_)

Locate the ordered pairs of numbers as points in the coordinate plane and label each point with its corresponding letter.

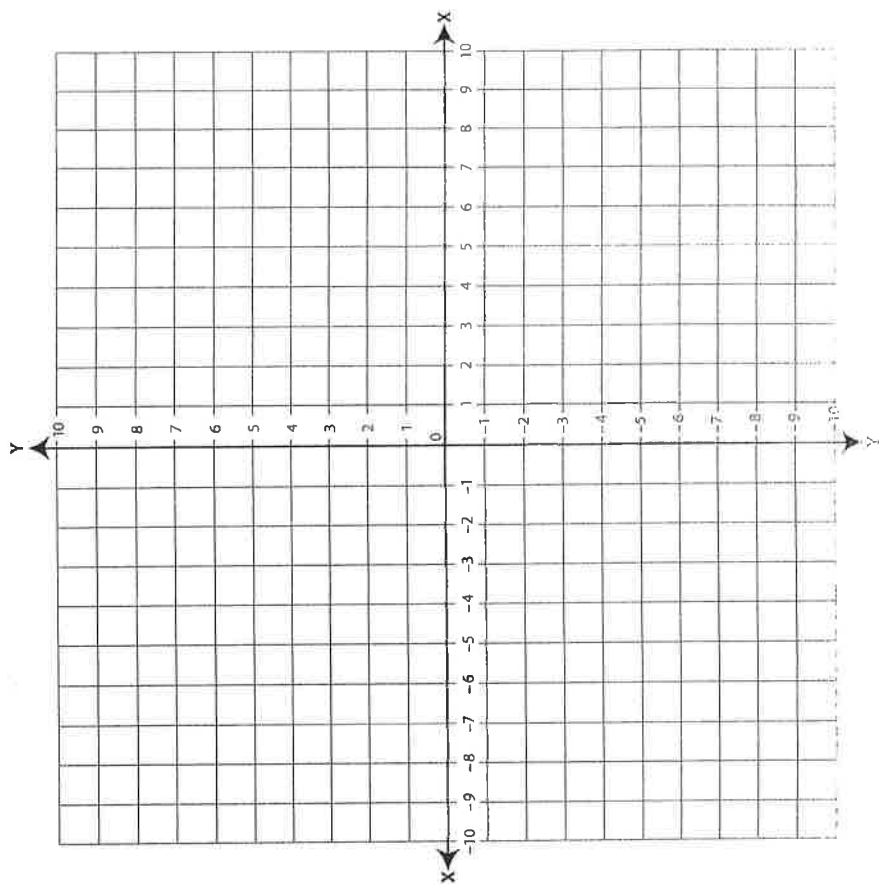
Draw  $\overline{MA}$ ,  $\overline{MB}$ ,  $\overline{AC}$ ,  $\overline{MC}$ ,  $\overline{MD}$ .

Draw  $\overline{CE}$ ,  $\overline{ME}$ ,  $\overline{EG}$ ,  $\overline{MG}$ ,  $\overline{MF}$ .

Draw  $\overline{GI}$ ,  $\overline{MH}$ ,  $\overline{MI}$ ,  $\overline{IK}$ ,  $\overline{MJ}$ .

Draw  $\overline{MK}$ ,  $\overline{KA}$ ,  $\overline{ML}$ .

Color or shade these triangular regions:  $\triangle AMB$ ,  $\triangle CMD$ ,  $\triangle EMF$ ,  $\triangle GMH$ ,  $\triangle IMJ$ ,  $\triangle KML$ .



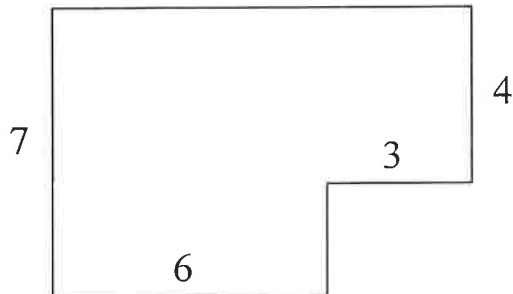


# COMPOSITE AREA

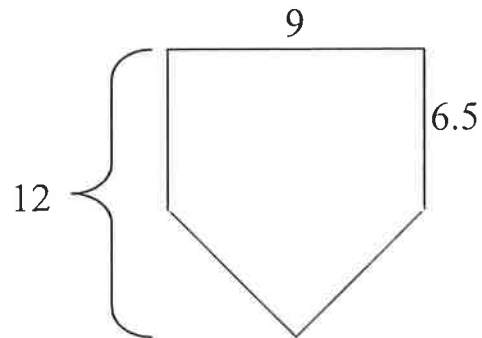
Find the area of each figure.



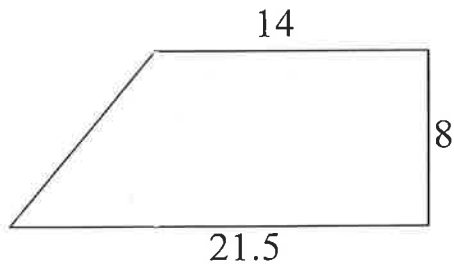
Inches:



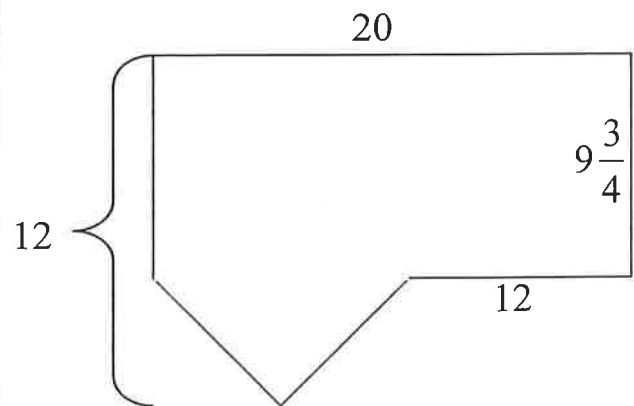
Feet:



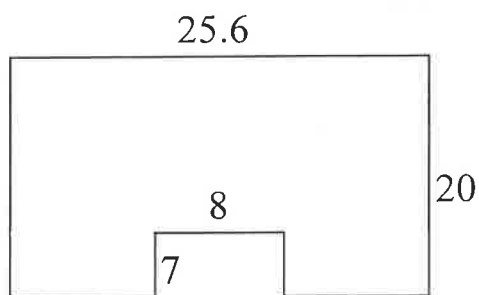
Centimeters:



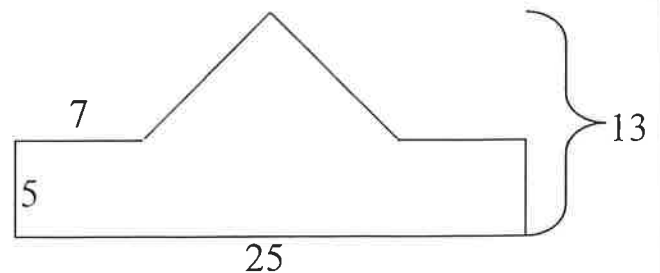
Inches:



Meters:



Yards:

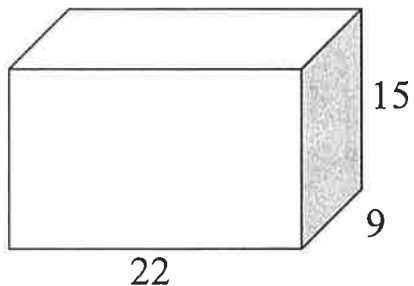


# VOLUME

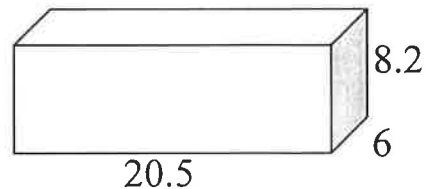
Find the volume of each figure.



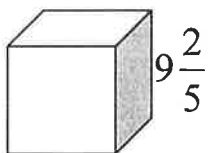
Inches



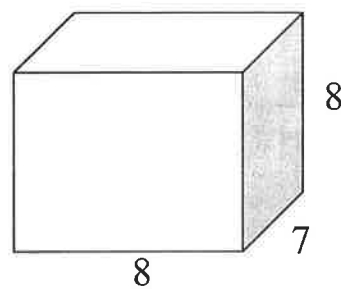
Inches



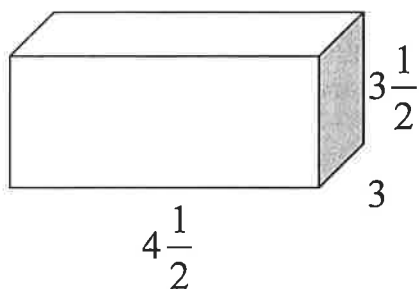
Centimeters



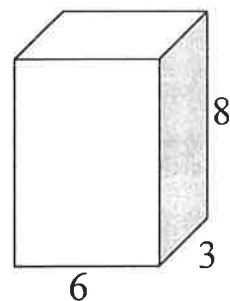
Feet



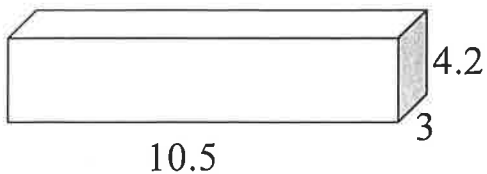
Inches



Feet



Centimeters



Inches

