

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.



UNIT RATE

Determine each unit rate.



<p>\$4.50 for 2 gallons of gas.</p> <p>ASK: How many \$ per gallon?</p> $\begin{array}{r} 2.25 \\ 2 \overline{)4.50} \\ \underline{-4} \\ 05 \\ \underline{-4} \\ 10 \end{array}$ <p>\$2.25 per gallon</p>	<p>\$14.80 for 4 pounds of fruit.</p>	<p>145 miles on 9 gallons of gas.</p>	<p>\$25 for seven tickets.</p>
<p>\$14 for 6 drinks.</p>	<p>11 miles in 45 minutes.</p>	<p>918 miles in 18 hours.</p>	<p>240 t-shirts made in 9 hours.</p>
<p>210 donuts can be made in 10 hours. How many can be made in 3 hours?</p>		<p>An airplane travels 475 miles in 5 hours. How far will the airplane travel in 9 hours?</p>	
<p>You bought 11 books for \$42.35. How much would 15 books cost?</p>		<p>In 9 hours, 2 inches of rain fell. At this rate, how many inches would fall in 12 hours?</p>	

UNIT RATE

Determine each unit rate.



<p>look for 1 — per →</p> <p>\$3 per lb</p>	<table border="1"> <thead> <tr> <th>lbs.</th> <th>Total Cost (\$)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>3</td> </tr> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>3</td> <td>9</td> </tr> </tbody> </table>	lbs.	Total Cost (\$)	0	0	1	3	2	6	3	9	<table border="1"> <thead> <tr> <th>Da y</th> <th># of Guests</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>100</td> </tr> <tr> <td>2</td> <td>200</td> </tr> <tr> <td>3</td> <td>300</td> </tr> <tr> <td>4</td> <td>400</td> </tr> </tbody> </table>	Da y	# of Guests	1	100	2	200	3	300	4	400	<table border="1"> <thead> <tr> <th>Da y</th> <th>Cupcake s Sold</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>2</td> </tr> <tr> <td>2</td> <td>4</td> </tr> <tr> <td>3</td> <td>6</td> </tr> </tbody> </table>	Da y	Cupcake s Sold	0	0	1	2	2	4	3	6
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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}

GCF & LCM

Greatest Common Factor
↓
Least Common Multiple
↓
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	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. 14, 20, 30	Find the GCF and LCM. 6 & 12 GCF : _____ LCM : _____

* line up decimals! *

add & SUBTRACT decimals

Find each sum or difference.

$13.2 + 6.84$	$19.12 + 0.45$	$10.362 - 1.2$	$30.5 - 3.23$
$12.89 + 4.9$	$5.032 + 9.6$	$15.5 - 3$	$16.32 - 8.1$
<p>You buy 2.67 pounds of apples and 4.9 pounds of oranges. How many pounds of fruit did you buy?</p>	<p>You cut a 2.675 foot section from an 8.9 foot piece of wood. How much is left?</p>		
<p>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?</p>	<p>Travis has a \$20 gift card. He spent \$9.62 and then another \$2.49. How much is left on the gift card?</p>		

MULTIPLY & divide decimals

Find each product or quotient.

$3.2 \cdot 4.6$	$8.9 \cdot 4.1$	$28.3 \div 5.1$ ← multiply both by 10 to rid of decimal $5.1 \overline{) 28.3}$	$29.2 \div 4$ ← divide normally due to no decimal in divisor
$6.12 \cdot 4.3$	$9.86 \cdot 0.2$	$10.35 \div 9$	$30.4 \div 2.8$
$5.82 \cdot 1.6$	$13.45 \cdot 2.2$	<p>A 14.24 pound bag of cheese is split among 5 pizzas. How much cheese is on each pizza?</p>	
<p>Veronica ran 2.5 times around a 4.62 mile course. How far did she run?</p>		<p>A 6.5 foot long piece of wood is cut into 5 sections. How long is each section?</p>	

* common denominator

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.

$\frac{2}{5} \cdot \frac{7}{10}$	$\frac{2}{3} \cdot 8$	$\frac{7}{8} \cdot \frac{2}{3}$	$\frac{3}{10} \cdot \frac{1}{4}$
$\begin{array}{l} +1 \\ 3\frac{1}{2} \cdot 4 \\ \times 2 \\ \hline \uparrow \\ \text{make improper} \\ \frac{7}{2} \cdot 4 = \frac{28}{2} = 14 \end{array}$	$6\frac{1}{8} \cdot 2\frac{1}{2}$	$3\frac{1}{3} \cdot 4\frac{3}{4}$	$5\frac{2}{5} \cdot \frac{9}{10}$
$8\frac{1}{3} \cdot 2\frac{1}{4}$	$3\frac{3}{5} \cdot 6\frac{1}{5}$	<p>Kim has four pieces of ribbon that are each $12\frac{1}{5}$ inches long. How much ribbon does she have altogether?</p>	
<p>You ran $4\frac{1}{2}$ times around a $2\frac{1}{4}$ mile track. How far did you run?</p>		<p>Sasha has six boxes of chocolate that each weigh $16\frac{1}{8}$ ounces. How much chocolate does she have altogether?</p>	

* keep change flip *

dividing fractions


Find each quotient.



$\frac{2}{5} \div 8$	$\frac{5}{6} \div 4$	$\frac{7}{8} \div 2$	$\frac{9}{10} \div 4$
$3\frac{1}{2} \div 5$	$6\frac{1}{5} \div 2$	$9\frac{1}{3} \div 3$	$5\frac{2}{5} \div 2$
$5\frac{1}{2} \div \frac{3}{5}$	$\frac{7}{10} \div \frac{1}{3}$	$10\frac{1}{4} \div \frac{2}{5}$	$\frac{11}{12} \div \frac{1}{6}$
<p>A $4\frac{9}{10}$ foot long piece of wood is cut into 6 sections. How long is each section?</p>	<p>You split $8\frac{1}{2}$ pounds of strawberries equally among 5 containers. How many pounds of strawberries are in each container?</p>		

the distributive PROPERTY

Simplify each expression.

$6(x + 4)$  $(6 \cdot x) + (6 \cdot 4)$ $6x + 24$	$2x(5 - 1)$	$10(6x - 2)$	$2(2 + 3x) + 4x$
$6(2x + 3) - 3x$	$2x(5 + 4) - 2$	$8(5x - 10)$	$3(4x - 2(2))$
$8x(5 - 2) - 3x$	$9(8x - 5) + 3$	$(5 + 3)2x + 4x$	$2(9 - 5x) - 2x$
$10(3x + 4) + 5$	$4x(4 + 2) + 10x$	$(16 - 4)4x + 3$	$4x(3 + 2) - 8 + x$

absolute value

Read each problem carefully.



What is the definition of absolute value?	Find the absolute value of -5.	
How far is 6 from zero on a number line?	Is the absolute value of a number the same as the opposite? Explain.	
Find the absolute value of -4.3.	Find the absolute value of 0.	How far is -8 from zero on a number line?
Find the absolute value of 1.	Find the absolute value of 8.	Find the absolute value of 140.
Find the absolute value of $-\frac{3}{4}$.	Find the absolute value of 1.4.	Find the absolute value of -12.

ORDERING RATIONAL NUMBERS

Put the given numbers in order.

<p>Put the following numbers in order from least to greatest.</p> <p>0.3, 0.13, 0.32, 0.303</p>	<p>Put the following numbers in order from greatest to least.</p> <p>6.05, 6.007, 6.5, 6.25</p>
<p>Put the following numbers in order from greatest to least.</p> <p>8.2, 0.82, $\frac{4}{5}$, 0.08</p>	<p>Put the following numbers in order from least to greatest.</p> <p>$-3\frac{1}{2}$, $2\frac{1}{2}$, $2\frac{10}{11}$, $-2\frac{1}{2}$</p>
<p>Put the following numbers in order from least to greatest.</p> <p>-5.2, 5.04, -5.42, -5, 5.14</p>	<p>Put the following numbers in order from least to greatest.</p> <p>-2, 2.2, -2.2, -2.02, 2</p>
<p>Put the following numbers in order from greatest to least.</p> <p>$-\frac{2}{5}$, 2.5, -0.42, -2.2, 0.22</p>	<p>Put the following numbers in order from greatest to least.</p> <p>$\frac{1}{5}$, 0.02, $\frac{11}{50}$, 0.022</p>

P E \overrightarrow{MD} \overrightarrow{AS}

ORDER OF OPERATIONS

Simplify each expression.

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

EVALUATING EXPRESSIONS

Read each problem carefully.

<p>If $x = 4$, evaluate:</p> $4x - 8$ $4(4) - 8$ $16 - 8$ (8)	<p>If $x = -4$, evaluate:</p> $-3 - x$	<p>If $x = \frac{1}{2}$, evaluate:</p> $6(x + 2)$
<p>If $x = 2.5$, evaluate:</p> $x - 6$	<p>If $x = 10$, evaluate:</p> $2(-x + 5)$	<p>If $x = -\frac{1}{4}$, evaluate:</p> $\frac{3}{4}x$
<p>If $x = -3$, evaluate:</p> $3 + x - 5x$	<p>If $x = \frac{2}{3}$, evaluate: $3x + 8$</p>	<p>If $x = -5.5$, evaluate:</p> $-8x$
<p>If $x = 8.2$, evaluate:</p> $-x + 2x$	<p>If $x = -1$, evaluate:</p> $-2\frac{1}{2}x + \frac{5}{6}$	<p>If $x = 0$, evaluate:</p> $-2(3x + 8)$

WRITING EXPRESSIONS

Write an expression for each situation.

<p>You pay \$1.25 per pound for x pounds of apples.</p>	<p>Emma weighs 38 pounds. Gavin weighs x pounds less.</p>	<p>Four friends split an $\\$x$ dinner bill.</p>
<p>There are 15 kids on a bus. x more get on.</p>	<p>You have $\\$x$ on a gift card and spend \$9.50.</p>	<p>It takes x days to build a house. 3 weeks have passed.</p>
<p>You buy x DVDs for \$15 each.</p>	<p>Bill used a \$10 bill to pay for a $\\$x$ cup of coffee.</p>	<p>Nina left an $\\$x$ tip on a \$42.60 lunch bill.</p>
<p>There were 325 students in 6th grade last year. There are x less this year.</p>	<p>A soccer team raised \$4,250 for charity last year. This year they raised $\\$x$ more.</p>	<p>Tim pays a moving company \$50 per hour. They help him move for x hours.</p>

SOLVING EQUATIONS

Solve each equation.
Show your work.

$3x = 15$ ↑ what times 3 equals 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 INEQUALITIES

Write an inequality to represent each situation.

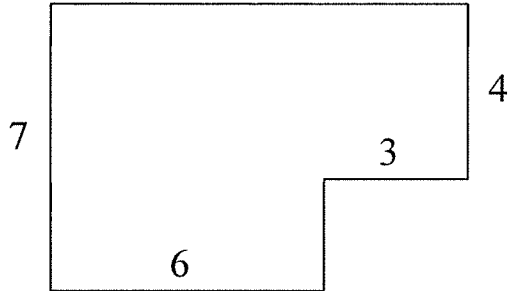
A number is at least -43 .	Twice a number is no more than 14 .	Half a number is more than 20 .
You can pay no more than $\$20$ for groceries.	Emily has already invited 6 friends to her party. She wants to invite at least 20 people altogether.	The temperature is at most 20° outside.
7 is greater than a number.	A number is less than or equal to -15 .	-8 is more than triple a number.
At least 40 students need to return their permission slips in order for the field trip to take place.	A soccer team raised more than $\$4,250$ for charity.	Tim earns at most $\$9$ an hour at his job.

COMPOSITE AREA

Find the area of each figure.

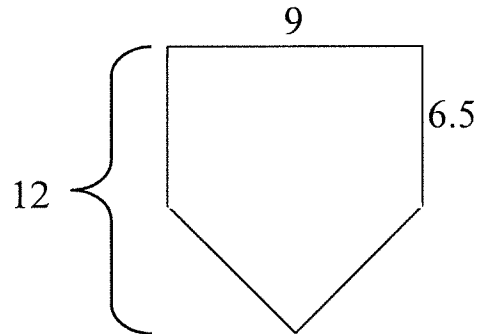


Inches:

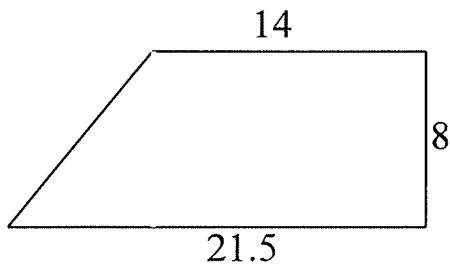


_____ in²

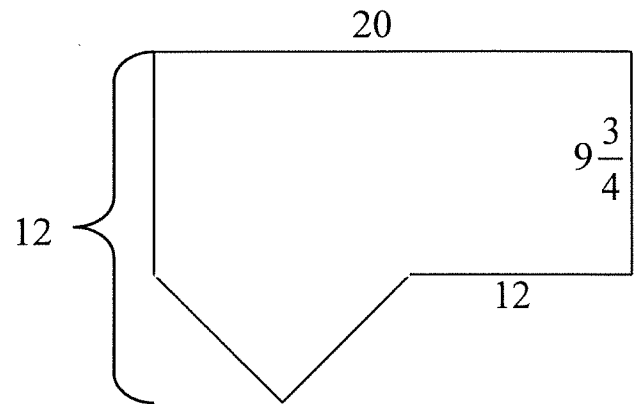
Feet:



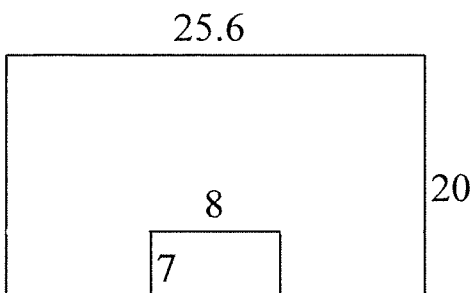
Centimeters:



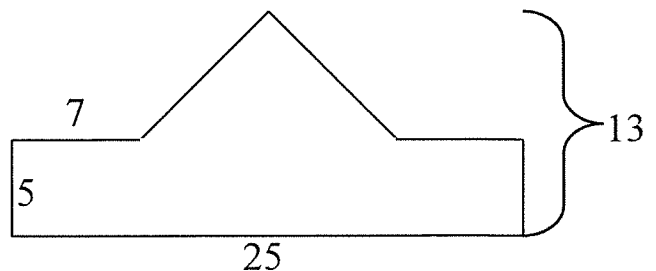
Inches:



Meters:



Yards:

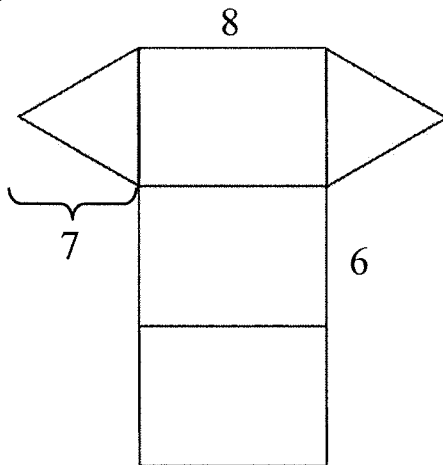


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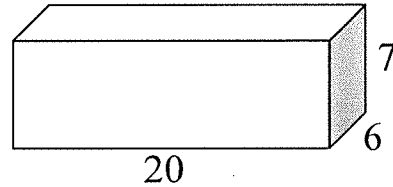
3d figures & nets

Read each problem carefully.

Find the surface area of the shape represented by this net.

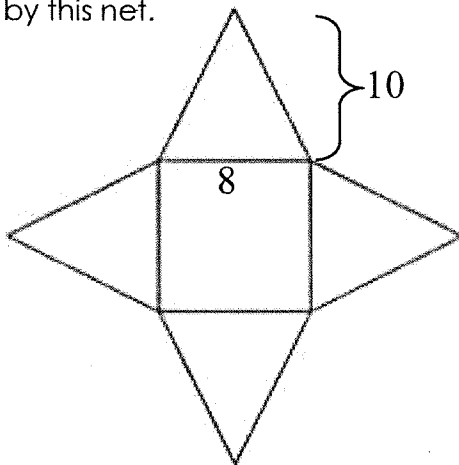


Find the surface area of the figure below.

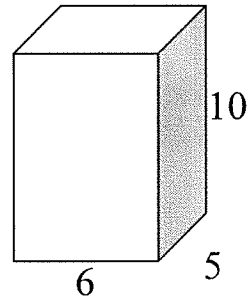


_____ units²

Find the surface area of the shape represented by this net.

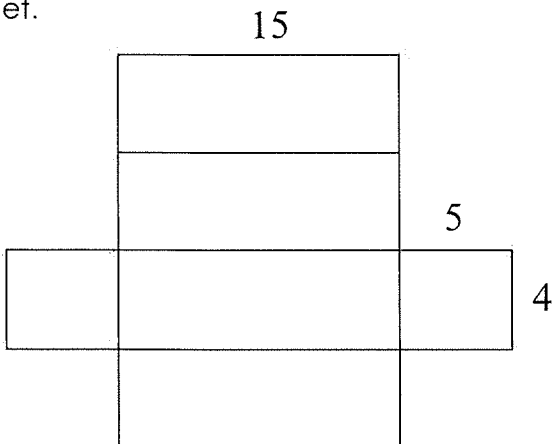


Find the volume of the figure below.

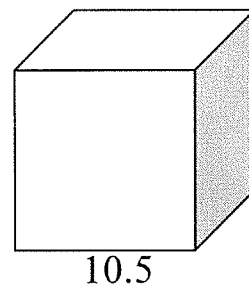


_____ units³

Find the volume of the shape represented by this net.



Find the surface area of the figure below.



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.

BOX PLOTS

need: median, lower quartile,
upper quartile, minimum, maximum
Read each problem carefully.



For questions 1 – 2, create a box plot using the given information.

1. The ages of kids in an art club:

6, 8, 9, 8, 7, 10, 8, 9, 7, 7, 6, 9, 10, 10, 8, 8

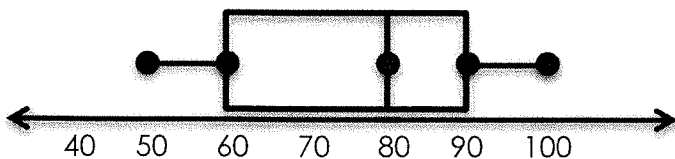


2. The height of flowers in a garden:

12, 16, 17, 15, 16, 14, 15, 16, 17, 14, 14, 16, 19, 12, 14, 17



Use the box plot below to answer
questions 3 – 5.



3. The box plot shows test scores for a 10
question quiz. What percent of students
scored higher than 80%?

4. The lowest 25% of students scored
below what?

5. What is the median score?