

Concepts students should know before entering 6th Grade Enriched/Accelerated:

Students should be advanced at these concepts:

Long Division

Directions: Complete the following problems. **NO CALCULATOR! SHOW ALL WORK!!**

1.
$$\begin{array}{r} 619 \\ 5 \overline{)3,095} \\ \underline{-30} \\ 09 \\ \underline{-5} \\ 45 \\ \underline{-45} \\ 0 \end{array}$$

2.
$$\begin{array}{r} 0510 \\ 3 \overline{)1,530} \\ \underline{-15} \downarrow \\ 03 \\ \underline{-3} \downarrow \\ 00 \\ \underline{-0} \\ 0 \end{array}$$

3.
$$\begin{array}{r} 0503 \\ 12 \overline{)6,036} \\ \underline{-60} \downarrow \\ 03 \\ \underline{-0} \downarrow \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

4.
$$\begin{array}{r} 0509 \\ 9 \overline{)4,581} \\ \underline{-45} \downarrow \\ 08 \\ \underline{-0} \downarrow \\ 81 \\ \underline{-81} \\ 0 \end{array}$$

5.
$$\begin{array}{r} 0775 \\ 7 \overline{)5,425} \\ \underline{-49} \downarrow \\ 52 \\ \underline{-49} \downarrow \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

6.
$$\begin{array}{r} 0928 \\ 8 \overline{)7,424} \\ \underline{-72} \downarrow \\ 22 \\ \underline{-16} \downarrow \\ 64 \\ \underline{-64} \\ 0 \end{array}$$

7.
$$\begin{array}{r} 0808 \\ 3 \overline{)2,424} \\ \underline{-24} \downarrow \\ 02 \\ \underline{-0} \downarrow \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

8.
$$\begin{array}{r} 0208 \\ 11 \overline{)2,288} \\ \underline{-22} \downarrow \\ 08 \\ \underline{-0} \downarrow \\ 88 \\ \underline{-88} \\ 0 \end{array}$$

9.
$$\begin{array}{r} 0907 \\ 6 \overline{)5,442} \\ \underline{-54} \downarrow \\ 04 \\ \underline{-0} \downarrow \\ 42 \\ \underline{-42} \\ 0 \end{array}$$

10.
$$\begin{array}{r} 0707 \\ 8 \overline{)5,656} \\ \underline{-56} \downarrow \\ 05 \\ \underline{-0} \downarrow \\ 56 \\ \underline{-56} \\ 0 \end{array}$$

11.
$$\begin{array}{r} 0520 \\ 3 \overline{)1,560} \\ \underline{-15} \downarrow \\ 06 \\ \underline{-6} \downarrow \\ 00 \\ \underline{-00} \\ 0 \end{array}$$

12.
$$\begin{array}{r} 0801 \\ 4 \overline{)3,204} \\ \underline{-32} \downarrow \\ 00 \\ \underline{-0} \downarrow \\ 04 \\ \underline{-04} \\ 0 \end{array}$$

Division Word Problems

Directions: Solve each of the following problems. **NO CALCULATORS!! SHOW ALL WORK!**

<p>1. Oliver played 2 rounds of a trivia game and scored 982 points. If he gained the same number of points each round, how many points did he score per round?</p> <p>2 rounds → 982 points 1 round → $982 \div 2 = 491$</p> <p>491 points per round</p>	<p>2. Roger has 365 baseball cards in 5 binders. If each binder has the same number of cards, how many cards are in each binder?</p> <p>5 binders → 365 cards 1 binder → $365 \div 5 = 73$</p> <p>73 cards per binder</p>
<p>3. Chloe had 472 video games. If she placed the games into 8 different stacks, how many games would be in each stack?</p> <p>8 stacks → 472 games 1 stacks → $472 \div 8 = 59$</p> <p>59 games per stack</p>	<p>4. An ice machine had 480 ice cubes in it. If you were filling up 8 ice chests and each chest got the same number of cubes, how many ice cubes would each chest get?</p> <p>$480 \div 8 = 60$</p> <p>60 ice cubes per ice chest</p>
<p>5. Faye is making bead necklaces. She has 606 beads and is making 2 necklaces with each necklace using the same number of beads. How many beads will each necklace use?</p> <p>$606 \div 2 = 303$</p> <p>303 beads per necklace</p>	<p>6. There are 545 students in a school. If the school has 5 grades and each grade had the same number of students, how many students were in each grade?</p> <p>5 grades → 545 students 1 grade → $545 \div 5 = 109$</p> <p>109 students per grades</p>

Mixed Numbers & Improper Fractions

Directions: Convert the following improper fractions to mixed numbers. Write your answer on the line next to each problem.

1) $\frac{9}{4} = \underline{2\frac{1}{4}}$	6) $\frac{11}{5} = \underline{2\frac{1}{5}}$	11) $\frac{71}{10} = \underline{7\frac{1}{10}}$
2) $\frac{82}{9} = \underline{9\frac{1}{9}}$	7) $\frac{61}{6} = \underline{10\frac{1}{6}}$	12) $\frac{29}{7} = \underline{4\frac{1}{7}}$
3) $\frac{31}{5} = \underline{6\frac{1}{5}}$	8) $\frac{7}{3} = \underline{2\frac{1}{3}}$	13) $\frac{55}{6} = \underline{9\frac{1}{6}}$
4) $\frac{13}{3} = \underline{4\frac{1}{3}}$	9) $\frac{50}{7} = \underline{7\frac{1}{7}}$	14) $\frac{21}{10} = \underline{2\frac{1}{10}}$
5) $\frac{29}{7} = \underline{4\frac{1}{7}}$	10) $\frac{17}{4} = \underline{4\frac{1}{4}}$	15) $\frac{25}{4} = \underline{6\frac{1}{4}}$

Directions: Convert the following improper fractions to mixed numbers. Write your answer on the line next to each problem.

1) $5\frac{1}{3} = \underline{\frac{16}{3}}$	6) $2\frac{1}{2} = \underline{\frac{5}{2}}$	11) $9\frac{1}{5} = \underline{\frac{46}{5}}$
2) $2\frac{1}{8} = \underline{\frac{17}{8}}$	7) $3\frac{1}{4} = \underline{\frac{13}{4}}$	12) $6\frac{1}{2} = \underline{\frac{13}{2}}$
3) $3\frac{1}{4} = \underline{\frac{13}{4}}$	8) $6\frac{1}{10} = \underline{\frac{61}{10}}$	13) $5\frac{4}{9} = \underline{\frac{49}{9}}$
4) $3\frac{2}{9} = \underline{\frac{29}{9}}$	9) $5\frac{7}{10} = \underline{\frac{57}{10}}$	14) $9\frac{2}{3} = \underline{\frac{29}{3}}$
5) $9\frac{3}{8} = \underline{\frac{75}{8}}$	10) $9\frac{1}{2} = \underline{\frac{19}{2}}$	15) $2\frac{3}{8} = \underline{\frac{19}{8}}$

Simplifying Fractions

Directions: Simplify the following fractions.

$\frac{4}{6} = \frac{2}{3}$	$\frac{2}{10} = \frac{1}{5}$	$\frac{21}{28} = \frac{3}{4}$	$\frac{10}{15} = \frac{2}{3}$	$\frac{6}{18} = \frac{1}{3}$
$\frac{4}{8} = \frac{1}{2}$	$\frac{16}{20} = \frac{4}{5}$	$\frac{7}{14} = \frac{1}{2}$	$\frac{6}{15} = \frac{2}{5}$	$\frac{12}{20} = \frac{3}{5}$

Adding Fractions

Directions: Solve the following problems. NO CALCULATOR! Put your answers in simplified form.

<p>1. $\frac{4}{7} + \frac{10}{21} =$</p> $\frac{12}{21} + \frac{10}{21} = \frac{22}{21} = 1\frac{1}{21}$	<p>2. $\frac{8}{9} + \frac{1}{3} =$</p> $\frac{24}{27} + \frac{9}{27} = \frac{33}{27} = 1\frac{6}{27}$ $= 1\frac{2}{9}$	<p>3. $\frac{11}{6} + \frac{4}{9} =$</p> $\frac{33}{18} + \frac{8}{18} = \frac{41}{18} = 2\frac{5}{18}$
<p>4. $\frac{6}{12} + \frac{12}{4} =$</p> $\frac{6}{12} + 3 = 3\frac{6}{12} = 3\frac{1}{2}$	<p>5. $\frac{4}{5} - \frac{7}{10} =$</p> $\frac{8}{10} - \frac{7}{10} = \frac{1}{10}$	<p>6. $\frac{8}{11} + \frac{12}{5} =$</p> $\frac{40}{55} + \frac{132}{55} = \frac{172}{55} = 3\frac{7}{55}$
<p>7. $\frac{10}{3} - \frac{2}{12} =$</p> $\frac{20}{6} - \frac{1}{6} = \frac{19}{6} = 3\frac{1}{6}$	<p>8. $\frac{11}{6} + \frac{1}{10} =$</p> $\frac{55}{30} + \frac{3}{30} = \frac{58}{30} = 1\frac{28}{30}$ $= 1\frac{14}{15}$	<p>9. $\frac{3}{5} - \frac{6}{11} =$</p> $\frac{33}{55} - \frac{30}{55} = \frac{3}{55}$

Adding Fractions

Directions: Solve the following. **NO CALCULATORS!!** Show all work and simplify your answer!

$1\frac{2}{5} + 3\frac{6}{7} = 5\frac{9}{35}$ <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: none;">$1\frac{2}{5}$</td> <td style="border: none;">+</td> <td style="border: none;">$3\frac{6}{7}$</td> <td style="border: none;">=</td> <td style="border: none;">$5\frac{9}{35}$</td> </tr> <tr> <td style="border: none;">$1\frac{2}{5}$</td> <td style="border: none;">+</td> <td style="border: none;">$3\frac{6}{7}$</td> <td style="border: none;">=</td> <td style="border: none;">$5\frac{9}{35}$</td> </tr> <tr> <td style="border: none;">$\frac{7}{5}$</td> <td style="border: none;">+</td> <td style="border: none;">$\frac{27}{7}$</td> <td style="border: none;">=</td> <td style="border: none;">$\frac{184}{35}$</td> </tr> <tr> <td style="border: none;">$\frac{49}{35}$</td> <td style="border: none;">+</td> <td style="border: none;">$\frac{135}{35}$</td> <td style="border: none;">=</td> <td style="border: none;">$\frac{184}{35}$</td> </tr> <tr> <td style="border: none;">$\frac{49}{35}$</td> <td style="border: none;">+</td> <td style="border: none;">$\frac{135}{35}$</td> <td style="border: none;">=</td> <td style="border: none;">$5\frac{9}{35}$</td> </tr> </table> <div style="margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; font-size: 0.8em;">Rewrite as improper fractions</div> </div> <div style="margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; font-size: 0.8em;">Find least common denominator</div> </div> </div>	$1\frac{2}{5}$	+	$3\frac{6}{7}$	=	$5\frac{9}{35}$	$1\frac{2}{5}$	+	$3\frac{6}{7}$	=	$5\frac{9}{35}$	$\frac{7}{5}$	+	$\frac{27}{7}$	=	$\frac{184}{35}$	$\frac{49}{35}$	+	$\frac{135}{35}$	=	$\frac{184}{35}$	$\frac{49}{35}$	+	$\frac{135}{35}$	=	$5\frac{9}{35}$	<p>1. $3\frac{1}{4} + 4\frac{1}{2} =$</p> $3\frac{1}{4} + 4\frac{2}{4} = 7\frac{3}{4}$
$1\frac{2}{5}$	+	$3\frac{6}{7}$	=	$5\frac{9}{35}$																						
$1\frac{2}{5}$	+	$3\frac{6}{7}$	=	$5\frac{9}{35}$																						
$\frac{7}{5}$	+	$\frac{27}{7}$	=	$\frac{184}{35}$																						
$\frac{49}{35}$	+	$\frac{135}{35}$	=	$\frac{184}{35}$																						
$\frac{49}{35}$	+	$\frac{135}{35}$	=	$5\frac{9}{35}$																						
<p>2. $2\frac{5}{6} + 5\frac{4}{7} =$</p> $2\frac{35}{42} + 5\frac{24}{42} = 7\frac{59}{42} = 8\frac{17}{42}$	<p>3. $2\frac{3}{5} + 6\frac{1}{4} =$</p> $2\frac{12}{20} + 6\frac{5}{20} = 8\frac{17}{20}$																									
<p>4. $4\frac{2}{3} + 4\frac{1}{6} =$</p> $4\frac{4}{6} + 4\frac{1}{6} = 8\frac{5}{6}$	<p>5. $3\frac{1}{2} + 3\frac{1}{5} =$</p> $3\frac{5}{10} + 3\frac{2}{10} = 6\frac{7}{10}$																									
<p>6. $23\frac{1}{2} - 18\frac{1}{6} =$</p> $23\frac{3}{6} - 18\frac{1}{6} = 5\frac{2}{6} = 5\frac{1}{3}$	<p>7. $19\frac{1}{2} - 4\frac{4}{5} =$</p> $19\frac{5}{10} - 4\frac{8}{10} = 18\frac{15}{10} - 4\frac{8}{10}$ $= 14\frac{7}{10}$																									

Multiplying Fractions

Directions: Solve the following. NO CALCULATORS!! Simplify your answer.

Example: $\frac{2}{3} \times 5 = ?$

make the whole number a fraction

$$\frac{5}{1}$$

multiply the top numbers (numerators)

$$2 \times 5 = 10$$

multiply the bottom numbers (denominators)

$$3 \times 1 = 3$$

write your result

$$\frac{10}{3}$$


<p>1. $3 \times \frac{2}{9} =$</p> $\frac{13}{1} \times \frac{2}{93} = \frac{2}{3}$	<p>2. $4 \times \frac{3}{15} =$</p> $\frac{4}{1} \times \frac{31}{155} = \frac{4}{5}$	<p>3. $2 \times \frac{9}{19} =$</p> $\frac{2}{1} \times \frac{9}{19} = \frac{18}{19}$
<p>4. $6 \times \frac{3}{24} =$</p> $\frac{16}{1} \times \frac{3}{244} = \frac{3}{4}$	<p>5. $2 \times \frac{2}{5} =$</p> $\frac{2}{1} \times \frac{2}{5} = \frac{4}{5}$	<p>6. $1 \times \frac{5}{5} =$</p> $\frac{1}{1} \times \frac{51}{51} = \frac{1}{1} = 1$
<p>7. $5 \times \frac{1}{7} =$</p> $\frac{5}{1} \times \frac{1}{7} = \frac{5}{7}$	<p>8. $10 \times \frac{1}{16} =$</p> $\frac{510}{1} \times \frac{1}{168} = \frac{5}{8}$	<p>9. $3 \times \frac{4}{9} =$</p> $\frac{13}{1} \times \frac{4}{93} = \frac{4}{3} = 1\frac{1}{3}$
<p>Example: $\frac{4}{5} \times \frac{2}{8} = ?$</p> <p>multiply numerators $\frac{4 \times 2}{5 \times 8} = \frac{8}{40}$ reduce final answer $\frac{8}{40} = \frac{1}{5}$ multiply denominators</p>	<p>10. $\frac{3}{6} \times \frac{3}{2} =$</p> $\frac{13}{26} \times \frac{3}{2} = \frac{3}{4}$	<p>11. $\frac{20}{40} \times \frac{2}{2} =$</p> $\frac{120}{240} \times \frac{21}{21} = \frac{1}{2}$
<p>12. $\frac{4}{7} \times \frac{5}{8} =$</p> $\frac{14}{7} \times \frac{5}{82} = \frac{5}{14}$	<p>13. $\frac{2}{6} \times \frac{6}{2} =$</p> $\frac{12}{16} \times \frac{61}{21} = \frac{1}{1} = 1$	<p>14. $\frac{5}{10} \times \frac{2}{1} =$</p> $\frac{15}{1210} \times \frac{21}{1} = \frac{1}{1} = 1$
<p>15. $\frac{5}{25} \times \frac{4}{1} =$</p> $\frac{15}{525} \times \frac{4}{1} = \frac{4}{5}$	<p>16. $\frac{15}{17} \times \frac{6}{6} =$</p> $\frac{15}{17} \times \frac{61}{61} = \frac{15}{17}$	<p>17. $\frac{9}{9} \times \frac{1}{1} =$</p> $\frac{19}{19} \times \frac{1}{1} = \frac{1}{1} = 1$

Directions: Solve each problem. **SHOW ALL WORK!! NO CALCULATORS!!**

Cupcakes Challenge: Practice Fractions

Aunt Marie needs help figuring out how much of each ingredient she will need to buy in order to make this cupcake recipe. Can you help her?

Recipe	She has...	She needs...
All purpose flour $4\frac{1}{3}$ cups	$\frac{2}{3}$ cup	$4\frac{1}{3} - \frac{2}{3} = 3\frac{4}{3} - \frac{2}{3} = 3\frac{2}{3}$
Sugar $3\frac{3}{4}$ cups	$\frac{6}{8}$ cup	$3\frac{3}{4} - \frac{6}{8} = 3\frac{6}{8} - \frac{6}{8} = 3$
Baking powder 4 teaspoons	$\frac{6}{5}$ teaspoons	$4 - \frac{6}{5} = 4 - 1\frac{1}{5} = 3\frac{5}{5} - 1\frac{1}{5} = 2\frac{4}{5}$
Milk 2 cups	$1\frac{1}{6}$ cups	$2 - 1\frac{1}{6} = 1\frac{6}{6} - 1\frac{1}{6} = \frac{5}{6}$
Vanilla 6 teaspoons	$2\frac{3}{6}$ teaspoons	$6 - 2\frac{3}{6} = 5\frac{2}{2} - 2\frac{1}{2} = 3\frac{1}{2}$
Eggs 2	0	$2 - 0 = 2$



More challenge!

This recipe is for 12 people. If Aunt Marie wanted to cut the recipe in half, how much of each ingredient would it call for?



All purpose flour	$4\frac{1}{3} \div 2 = \frac{13}{3} \times \frac{1}{2} = \frac{13}{6} = 2\frac{1}{6}$ cups
Sugar	$3\frac{3}{4} \div 2 = \frac{15}{4} \times \frac{1}{2} = \frac{15}{8} = 1\frac{7}{8}$ cups
Baking powder	$4 \div 2 = 2$ teaspoons
Milk	$2 \div 2 = 1$ cup
Vanilla	$6 \div 2 = 3$ teaspoons
Eggs	$2 \div 2 = 1$ egg

Adding & Subtracting Decimals

Directions: Solve the following. DO NOT USE A CALCULATOR!!

Example 1 Add Decimals

Find the value of $3.9 + 2.45$.

STEP 1 Rewrite the problem vertically in order to align the decimal points in each number. Add a zero to 3.9 as a placeholder.

$$\begin{array}{r} 3.90 \\ + 2.45 \\ \hline \end{array}$$

STEP 2 Begin by adding the digits in the hundredths place.

$$\begin{array}{r} 3.90 \\ + 2.45 \\ \hline 5 \end{array}$$

STEP 3 Add the digits in the tenths place. Since $9 + 4 = 13$, regroup 10 tenths as 1 one.

$$\begin{array}{r} 1 \\ 3.90 \\ + 2.45 \\ \hline 35 \end{array}$$

STEP 4 Place the decimal point in the answer. Add the digits in the ones place.

$$\begin{array}{r} 1 \\ 3.90 \\ + 2.45 \\ \hline 6.35 \end{array}$$

$3.9 + 2.45 = 6.35$

Example 2 Subtract Decimals

Find the value of $8.6 - 4.55$.

STEP 1 Rewrite the problem vertically in order to align the decimal points in each number. Add a zero to 8.6 as a placeholder.

$$\begin{array}{r} 8.60 \\ - 4.55 \\ \hline \end{array}$$

STEP 2 Begin by subtracting the digits in the hundredths place. Regroup 1 tenth as 10 hundredths so that you can subtract.

$$\begin{array}{r} 5 \text{ } 10 \\ 8.60 \\ - 4.55 \\ \hline 5 \end{array}$$

STEP 3 Subtract the digits in the tenths place.

$$\begin{array}{r} 5 \text{ } 10 \\ 8.60 \\ - 4.55 \\ \hline 05 \end{array}$$

STEP 4 Place the decimal point in the answer. Subtract the digits in the ones place.

$$\begin{array}{r} 5 \text{ } 10 \\ 8.60 \\ - 4.55 \\ \hline 4.05 \end{array}$$

$8.6 - 4.55 = 4.05$

1. $4.59 + 1.02$ $\begin{array}{r} 1 \\ 4.59 \\ + 1.02 \\ \hline 5.61 \end{array}$	2. $9.04 - 6.32$ $\begin{array}{r} 8 \text{ } 10 \\ 9.04 \\ - 6.32 \\ \hline 2.72 \end{array}$	3. $5.8 + 0.26$ $\begin{array}{r} 1 \\ 5.80 \\ + 0.26 \\ \hline 6.06 \end{array}$
4. $6.5 - 3.7$ $\begin{array}{r} 5 \text{ } 15 \\ 6.5 \\ - 3.7 \\ \hline 2.8 \end{array}$	5. $0.4 + 8.61$ $\begin{array}{r} 1 \\ 0.40 \\ + 8.61 \\ \hline 9.01 \end{array}$	6. $3.28 - 1.09$ $\begin{array}{r} 1 \text{ } 18 \\ 3.28 \\ - 1.09 \\ \hline 2.19 \end{array}$
7. $5.7 + 4.63$ $\begin{array}{r} 1 \\ 5.70 \\ + 4.63 \\ \hline 10.33 \end{array}$	8. $6.3 - 2.99$ $\begin{array}{r} 5 \text{ } 12 \text{ } 10 \\ 6.30 \\ - 2.99 \\ \hline 3.31 \end{array}$	9. $8.07 + 0.86$ $\begin{array}{r} 1 \\ 8.07 \\ + 0.86 \\ \hline 8.93 \end{array}$
10. $7.2 - 5.98$ $\begin{array}{r} 11 \\ 6.20 \\ - 5.98 \\ \hline 1.22 \end{array}$	11. $7.02 + 7.3$ $\begin{array}{r} 7.02 \\ + 7.30 \\ \hline 14.32 \end{array}$	12. $5.33 - 2.68$ $\begin{array}{r} 4 \text{ } 12 \text{ } 13 \\ 5.33 \\ - 2.68 \\ \hline 2.65 \end{array}$

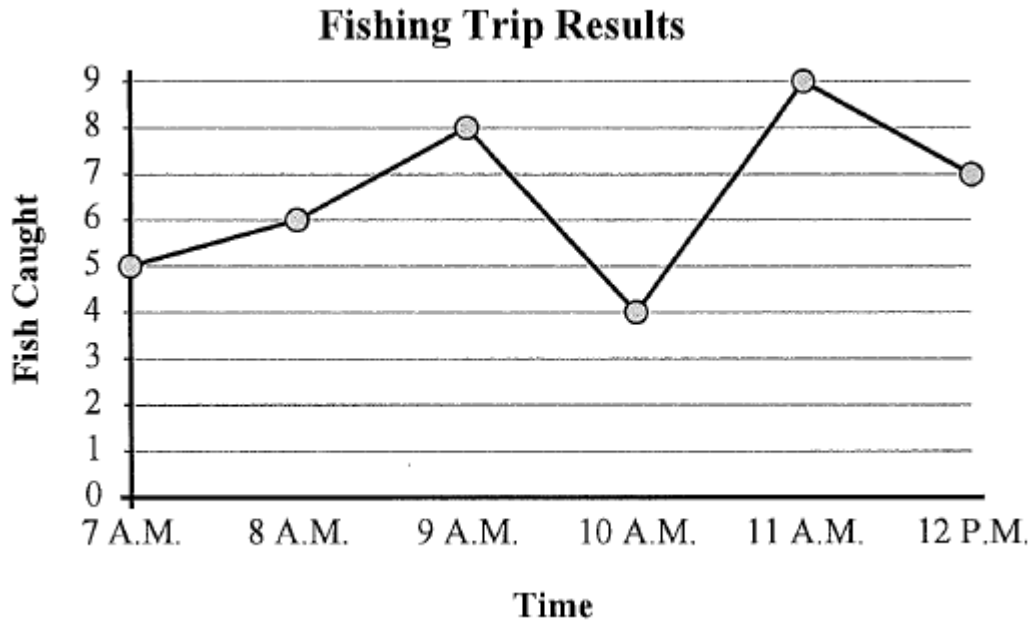
Multiplying & Dividing Decimals

Directions: Solve the following problems. NO CALCULATOR! Show all work!

<p>1.</p> $\begin{array}{r} 26 \\ 63.9 \\ \times 7.0 \\ \hline 447.30 \end{array}$	<p>2.</p> $\begin{array}{r} 43 \\ 88.6 \\ \times 5.01 \\ \hline 886 \\ +443000 \\ \hline 443.886 \end{array}$	<p>3.</p> $\begin{array}{r} 038 \\ 0.6 \overline{) 0.228} \\ \underline{-18} \\ 48 \\ \underline{-48} \\ 0 \end{array}$	<p>4.</p> $\begin{array}{r} 0027 \\ 0.84 \overline{) 0.2268} \\ \underline{-168} \\ 588 \\ \underline{-588} \\ 0 \end{array}$
<p>5. Diana paid \$35 for 10 kilograms of raisins. She put half of the total mass of the raisins into Pack A and the other half into Pack B. Diana sold Pack A for \$4.50 per kilogram and Pack B for \$5.50 per kilogram. Diana sold all of the raisins. How much money did she make?</p> <p>Pack A: $5 \cdot \\$4.50 = \\22.50</p> <p>Pack B: $5 \cdot \\$5.50 = \\27.50</p> <p>$\\$22.50 + \\$27.50 = \\$50.00$</p> <p>$\\$50.00 - \\$35.00 = \\15.00</p>		<p>6. A ball of fine thread cost \$1.65 per meter for the first 20 meters and \$0.95 for each additional meter. Jesse bought 32 meters of the thread. How much did she pay for the thread?</p> <p>$\\$1.65 \cdot 20 = \\33.00</p> <p>$\\$0.95 \cdot 12 = \\11.40</p> <p>$\\$33.00 + \\$11.40 = \\$44.40$</p>	

Reading a Line Graph

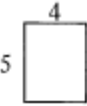
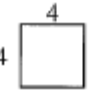
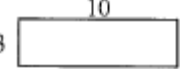





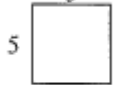
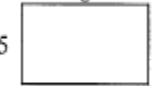
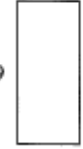

Directions: The graph below shows the number of fish caught in a day. Use the graph to answer the questions.



- 1) What time were the most fish caught? 11 AM
- 2) What time were the fewest fish caught? 10 AM
- 3) From 11 A.M. to 12 P.M. did the number of fish caught increase or decrease? Decrease
- 4) How many fish were caught at 9 A.M.? 8 fish
- 5) How many fish were caught at 10 A.M.? 4 fish
- 6) Were more fish caught at 10 A.M. or 11 A.M.? 11 AM
- 7) Were fewer fish caught at 9 A.M. or 10 A.M.? 10 AM
- 8) What is the difference in the number of fish caught at 9 A.M. and the number caught at 12 P.M.?
1 fish
- 9) What is the total number of fish caught? 39 fish
- 10) Were there at least 5 caught at 8 A.M.? Yes

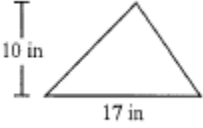
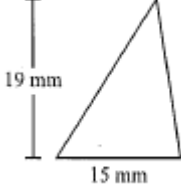
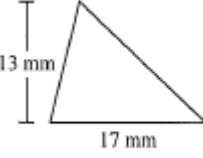
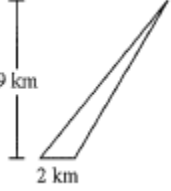
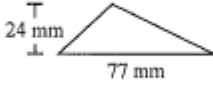
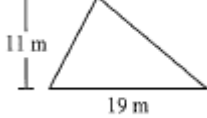
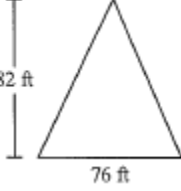
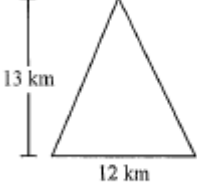
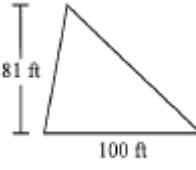
Finding Area & Perimeter of Rectangles

*Directions: Find the **perimeter** & **area** of the shapes below. All work must be shown!! Please follow the example problems for work we expect.*

 <p> $A = bh$ $A = 4(5)$ $A = 20 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(4) + 2(5)$ $P = 8 + 10$ $P = 18 \text{ u}$ </p>	 <p> $A = s^2$ $A = 4^2$ $A = 16 \text{ u}^2$ </p> <p> $P = 4s$ $P = 4(4)$ $P = 16 \text{ u}$ </p>	 <p> $A = bh$ $A = 3(10)$ $A = 30 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(3) + 2(10)$ $P = 6 + 20$ $P = 26 \text{ u}$ </p>
 <p> $A = bh$ $A = 2(4)$ $A = 8 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(2) + 2(4)$ $P = 4 + 8$ $P = 12 \text{ u}$ </p>	 <p> $A = bh$ $A = 3(2)$ $A = 6 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(3) + 2(2)$ $P = 6 + 4$ $P = 10 \text{ u}$ </p>	 <p> $A = bh$ $A = 7(9)$ $A = 63 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(7) + 2(9)$ $P = 14 + 18$ $P = 32 \text{ u}$ </p>
 <p> $A = bh$ $A = 9(10)$ $A = 90 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(9) + 2(10)$ $P = 18 + 20$ $P = 38 \text{ u}$ </p>	 <p> $A = bh$ $A = 8(10)$ $A = 80 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(8) + 2(10)$ $P = 16 + 20$ $P = 36 \text{ u}$ </p>	 <p> $A = s^2$ $A = 5^2$ $A = 25 \text{ u}^2$ </p> <p> $P = 4s$ $P = 4(5)$ $P = 20 \text{ u}$ </p>
 <p> $A = bh$ $A = 8(5)$ $A = 40 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(8) + 2(5)$ $P = 16 + 10$ $P = 26 \text{ u}$ </p>	 <p> $A = bh$ $A = 4(9)$ $A = 36 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(4) + 2(9)$ $P = 8 + 18$ $P = 26 \text{ u}$ </p>	 <p> $A = bh$ $A = 6(7)$ $A = 42 \text{ u}^2$ </p> <p> $P = 2b + 2h$ $P = 2(6) + 2(7)$ $P = 12 + 14$ $P = 26 \text{ u}$ </p>

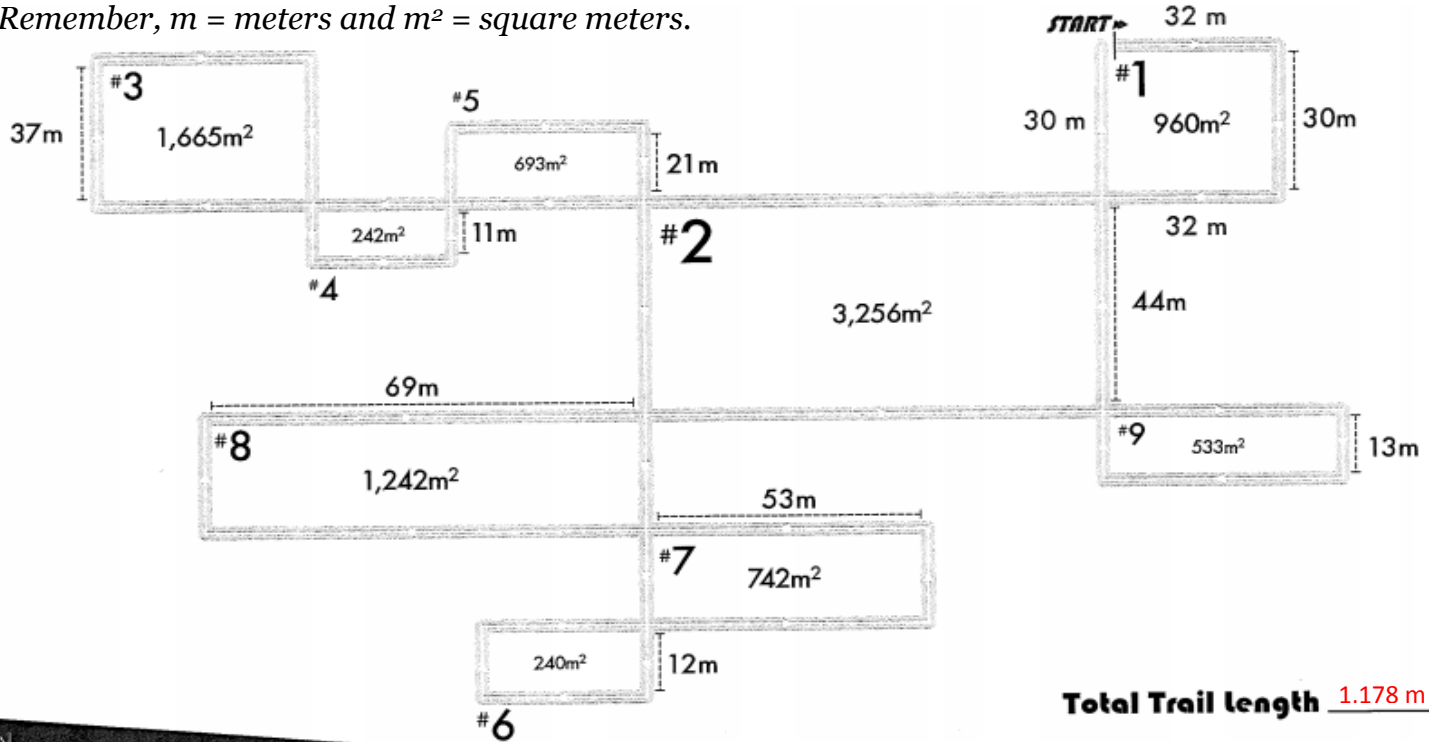
Finding Area of Triangles

Directions: Find the area of the triangles below. All work must be shown. Please follow the example problem for work we expect to see.

 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(17)(10)$</p> <p>$A = 85 \text{ in}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(15)(19)$</p> <p>$A = 142.5 \text{ mm}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(17)(13)$</p> <p>$A = 110.5 \text{ mm}^2$</p>
 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(2)(9)$</p> <p>$A = 9 \text{ km}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(77)(24)$</p> <p>$A = 924 \text{ mm}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(19)(11)$</p> <p>$A = 104.5 \text{ in}^2$</p>
 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(76)(82)$</p> <p>$A = 3,116 \text{ ft}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(12)(13)$</p> <p>$A = 78 \text{ km}^2$</p>	 <p>$A = \frac{1}{2}bh$</p> <p>$A = \frac{1}{2}(100)(81)$</p> <p>$A = 4,050 \text{ in}^2$</p>

Area

Directions: Find the total length of the cross-country ski trail below by finding the length of the individual segments. In each rectangular loop, the area and one side length are given. After you've solved for each segment length, add them together and write the total in the bottom right corner. Remember, m = meters and m^2 = square meters.



#1 Length = 30 m
Width = 32 m
Area = 960 m^2

$$\begin{array}{r} 32 \\ 30 \overline{)960} \\ \underline{-90} \\ 60 \\ \underline{-60} \\ 0 \end{array}$$

Perimeter = 124 m
 $30+32+30+32 = 124$

#2 Length = 44 m
Width = 74 m
Area = 3,256 m^2

$$\begin{array}{r} 74 \\ 44 \overline{)3256} \\ \underline{-308} \\ 176 \\ 2(44)+2(74) \\ \underline{-176} \\ 0 \end{array}$$

$2(44)+2(74)$
 $88+148$
 236

Perimeter = 236 m

#3 Length = 37 m
Width = 45 m
Area = 1,665 m^2

$$\begin{array}{r} 45 \\ 37 \overline{)1665} \\ \underline{-148} \\ 185 \\ 2(37)+2(45) \\ \underline{-185} \\ 0 \end{array}$$

$2(37)+2(45)$
 $74+90$
 164

Perimeter = 164 m

#4 Length = 11 m
Width = 22 m
Area = 242 m^2

$$\begin{array}{r} 22 \\ 11 \overline{)242} \\ \underline{-22} \\ 22 \\ 2(11)+2(22) \\ \underline{-22} \\ 0 \end{array}$$

$2(11)+2(22)$
 $22+44$
 66

Perimeter = 66 m

#5 Length = 21 m
Width = 33 m
Area = 693 m^2

$$\begin{array}{r} 33 \\ 21 \overline{)693} \\ \underline{-63} \\ 63 \\ 2(21)+2(33) \\ \underline{-63} \\ 0 \end{array}$$

$2(21)+2(33)$
 $42+66$
 108

Perimeter = 108 m

#6 Length = 12 m
Width = 20 m
Area = 240 m^2

$$\begin{array}{r} 20 \\ 12 \overline{)240} \\ \underline{-24} \\ 00 \\ 2(12)+2(20) \\ 24+40 \\ 64 \end{array}$$

Perimeter = 64 m

#7 Length = 14 m
Width = 53 m
Area = 742 m^2

$$\begin{array}{r} 14 \\ 53 \overline{)742} \\ \underline{-53} \\ 212 \\ 2(14)+2(53) \\ 28+106 \\ 134 \\ \underline{-212} \\ 0 \end{array}$$

Perimeter = 134 m

#8 Length = 18 m
Width = 69 m
Area = 1,242 m^2

$$\begin{array}{r} 18 \\ 69 \overline{)1242} \\ \underline{-69} \\ 552 \\ 2(18)+2(69) \\ 36+138 \\ 174 \\ \underline{-552} \\ 0 \end{array}$$

Perimeter = 174 m

#9 Length = 13 m
Width = 41 m
Area = 533 m^2

$$\begin{array}{r} 41 \\ 13 \overline{)533} \\ \underline{-52} \\ 13 \\ 2(13)+2(41) \\ 26+82 \\ 108 \\ \underline{-13} \\ 0 \end{array}$$

Perimeter = 108 m

Fill out the spaces with the perimeters of the 9 rectangular loops and add them together. \blacktriangleright

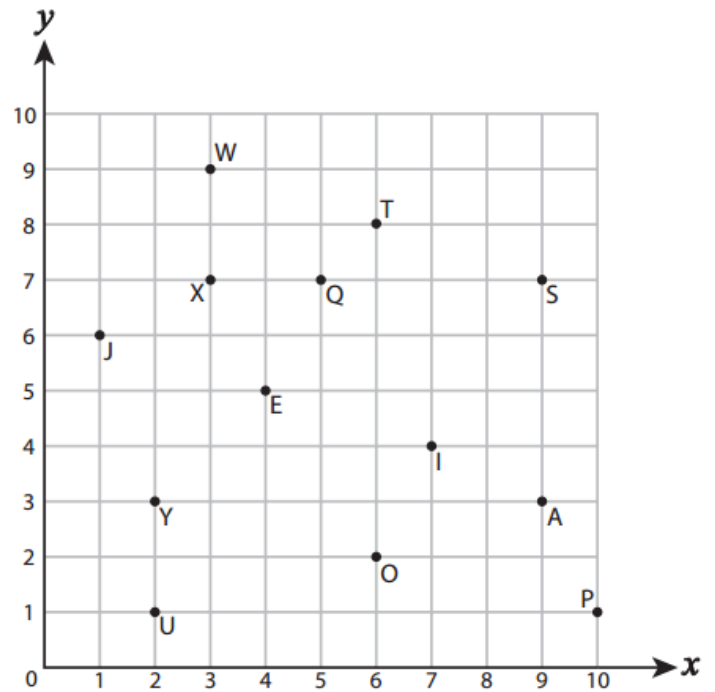
	124 m
	236 m
	164 m
	66 m
	108 m
	64 m
	134 m
	174 m
	108 m
	+
	108 m

TOTAL \blacktriangleright 1,178 m

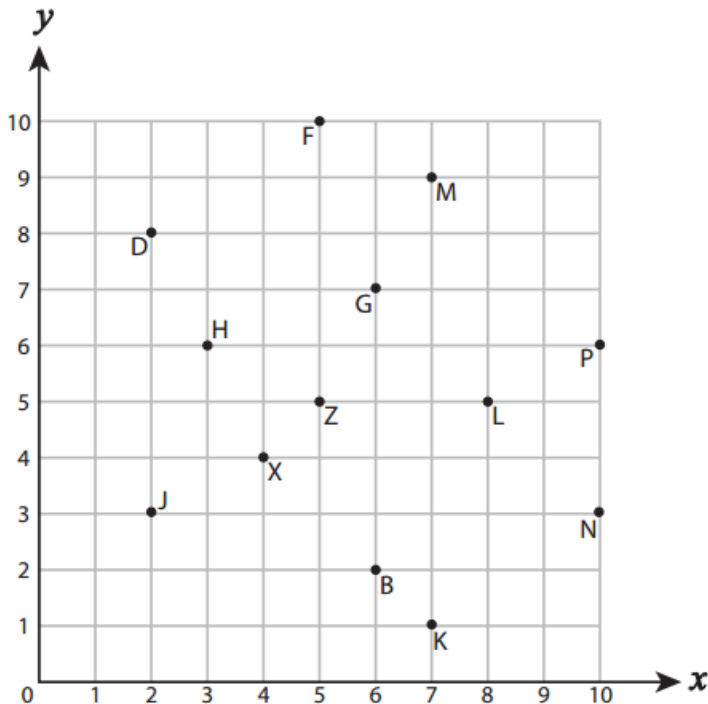
Coordinate System

Directions: Write the point that is located at each ordered pair.

- | | |
|-----------------------------|-----------------------------|
| 1) (6, 2) <u> O </u> | 2) (6, 8) <u> T </u> |
| 3) (10, 1) <u> P </u> | 4) (4, 5) <u> E </u> |
| 5) (9, 7) <u> S </u> | 6) (2, 3) <u> Y </u> |
| 7) (1, 6) <u> J </u> | 8) (5, 7) <u> Q </u> |
| 9) (2, 1) <u> U </u> | 10) (7, 4) <u> I </u> |



Directions: Write the ordered pair for each point.



- | | |
|----------------------|----------------------|
| 11) N (. 10 , 3 .) | 12) X (. 4 , 4 .) |
| 13) B (. 6 , 2 .) | 14) L (. 8 , 5 .) |
| 15) Z (. 5 , 5 .) | 16) P (. 10 , 6 .) |
| 17) D (. 2 , 8 .) | 18) M (. 7 , 9 .) |
| 19) J (. 2 , 3 .) | 20) H (. 3 , 6 .) |

Order of Operation

Directions: Simplify the following. Remember your PEMDAS rules!

PEMDAS Rules

Evaluate the problem in the following order:

- 1) P - Parentheses
- 2) E - Exponents (Powers and Square Roots)
- 3) MD - Multiplication and Division (Left to Right)
- 4) AS - Addition and Subtraction (Left to Right)

You can remember the order by saying :

Please Excuse My Dear Aunt Sally

a	x	u	i	d	u
r	p	l	v	d	b
e	o	t	i	i	t
n	n	i	s	t	r
t	e	p	i	i	a
h	n	l	o	o	c
e	t	i	n	n	t
s	s	c			i
e		a			o
s		t			n
		i			
		o			
		n			

$13 \times 13 - 4 + 10$ \checkmark $169 - 4 + 10$ \checkmark $165 + 10$ $\textcircled{175}$ <hr/>	1. $18 - 11 + 19 \times 3$ $18 - 11 + 57$ $7 + 57$ 64
2. $24 \div 8 \times 11 + 3$ $3 \times 11 + 3$ $33 + 3$ 36	3. $2 + 11 \times 17 - 12$ $2 + 187 - 12$ $189 - 12$ 177
4. $9 + 4 \times 12 + 15$ $9 + 48 + 15$ $57 + 15$ 72	5. $16 \times 3 - 2 + 3$ $48 - 2 + 3$ $46 + 3$ 49
6. $16 + 9 - 10 \div 5$ $16 + 9 - 2$ $25 - 2$ 23	7. $16 \div 2 + 19 - 16$ $8 + 19 - 16$ $27 - 16$ 11

Order of Operation

Directions: Simplify the following. Remember your PEMDAS rules!

$8 + 4 \times 19 + 10 - 1$ $\begin{array}{r} \checkmark \\ 2 \times 19 + 10 - 1 \\ \checkmark \\ 38 + 10 - 1 \\ \checkmark \\ 48 - 1 \end{array} \quad (47)$	$8. 2 \times 17 \div 13 \times 3 - 1$ $\begin{array}{r} 34 + 13 \times 3 - 1 \\ 34 + 39 - 1 \\ 73 - 1 \\ 72 \end{array}$
$9. 4 - 1 + 16 \times 11 \div 8$ $\begin{array}{r} 4 - 1 + 176 \div 8 \\ 3 + 176 \div 8 \\ 179 \div 8 \\ 187 \end{array}$	$10. 4 - 1 + 17 \times 18 \div 9$ $\begin{array}{r} 4 - 1 + 306 \div 9 \\ 4 - 1 + 34 \\ 3 + 34 \\ 37 \end{array}$
$11. 18 + 14 \div 2 \times 18 \times 16$ $\begin{array}{r} 18 + 7 \times 18 \times 16 \\ 18 + 126 \times 16 \\ 18 + 2016 \\ 2034 \end{array}$	$12. 17 \times 14 + 14 - 6 \times 10$ $\begin{array}{r} 238 + 14 - 6 \times 10 \\ 238 + 14 - 60 \\ 252 - 60 \\ 192 \end{array}$
$13. 17 \times 10 \div 2 - 1 \times 12$ $\begin{array}{r} 170 \div 2 - 1 \times 12 \\ 85 - 1 \times 12 \\ 85 - 12 \\ 73 \end{array}$	$14. 15 - 13 + 14 \times 9 + 19$ $\begin{array}{r} 15 - 13 + 126 + 19 \\ 2 + 126 + 19 \\ 128 + 19 \\ 147 \end{array}$
$15. 9 \times 5 - 1 + 8 + 15$ $\begin{array}{r} 45 - 1 + 8 + 15 \\ 44 + 8 + 15 \\ 52 + 15 \\ 67 \end{array}$	$16. 18 \times 11 \times 12 \div 3 - 2$ $\begin{array}{r} 198 \times 12 \div 3 - 2 \\ 2376 \div 3 - 2 \\ 792 - 2 \\ 790 \end{array}$

Squares & Cubes

Directions: Evaluate the following. You may use a calculator.

$(10)^3 = (10)(10)(10) = 1,000$		$(12)^2 = (12)(12) = 144$
1. $(2)^2 = (2)(2) = 4$	2. $(9)^3 = (9)(9)(9) = 729$	3. $(4)^3 = (4)(4)(4) = 64$
4. $(4)^2 = (4)(4) = 16$	5. $(7)^2 = (7)(7) = 49$	6. $(12)^3 = (12)(12)(12) = 1728$
7. $(5)^3 = (5)(5)(5) = 125$	8. $(6)^2 = (6)(6) = 36$	9. $(8)^2 = (8)(8) = 64$
10. $(3)^3 = (3)(3)(3) = 27$	11. $(1)^3 = (1)(1)(1) = 1$	12. $(8)^3 = (8)(8)(8) = 512$
13. $(5)^2 = (5)(5) = 25$	14. $(2)^3 = (2)(2)(2) = 8$	15. $(11)^2 = (11)(11) = 121$
16. $(7)^3 = (7)(7)(7) = 343$	17. $(6)^3 = (6)(6)(6) = 216$	18. $(9)^2 = (9)(9) = 81$

Prime Factorization

Directions: Determine the prime factorization of the following numbers.

<p>Example</p> <p>Prime Factors $2 \times 2 \times 3 \times 5 = 60$</p>	<p>1.</p> <p>Prime Factors $2 \times 2 \times 2 \times 2 \times 5 = 80$</p>	<p>2.</p> <p>Prime Factors $2 \times 2 \times 3 \times 3 \times 3 = 108$</p>
<p>3.</p> <p>Prime Factors $2 \times 2 \times 2 \times 11 = 88$</p>	<p>4.</p> <p>Prime Factors $2 \times 3 \times 3 \times 3 = 54$</p>	<p>5.</p> <p>Prime Factors $2 \times 2 \times 5 \times 5 = 100$</p>
<p>6.</p> <p>Prime Factors $2 \times 2 \times 2 \times 3 = 24$</p>	<p>7.</p> <p>Prime Factors $2 \times 2 \times 11 = 44$</p>	<p>8.</p> <p>Prime Factors $2 \times 5 \times 5 = 50$</p>

Ratios

Directions: Solve each problem. **SHOW ALL WORK!**

1. A recipe called for the ratio of sugar to flour to be 5 : 1. If you used 35 ounces of sugar, how many ounces of flour would you need to use?

5 sugar : 1 flour
 $\times 7 \quad \times 7$
 35 sugar : 7 flour
 7 ounces

2. A buffet offers ranch or Caesar dressing. The ratio of ranch dressing used to Caesar dressing used is 8 : 3. If the buffet uses 72 cases of ranch dressing, how many cases of Caesar do they use?

8 ranch : 3 Caesar
 $\times 9 \quad \times 9$
 72 ranch : 27 Caesar
 27 cases of Caesar

3. The ratio of two numbers is 7:2. The difference between the two numbers is 15. What is the greater number?

Difference: $7 - 2 = 5$

5 units \rightarrow 15
 1 unit $\rightarrow 15 \div 5 = 3$
 7 units $\rightarrow 7 \times 3 = 21$

The greatest number is 21.

4. The areas of three lawns are in the ratio of 2:4:7. The medium-sized lawn has an area of 72 square yards. It costs \$2 per square yard to fertilize the lawns. How much more does it cost to fertilize the largest lawn than the smallest lawn?

2 : 4 : 7
 $\times 18 \quad \times 18$
 36 : 72 : 126

$126 \cdot \$2 = \252
 $36 \cdot \$2 = \72

$\$252 - \$72 = \$180$

\$180 more

5. The ratio of Theo's age to Zack's age is 7:10. Twelve years ago, Zack was twice as old as Theo. What will be the ratio of Theo's age to Zack's age 9 years from now?

	Now 7:10	12 Years Ago 1:2	Twice?
Try 1	14 : 20	2 : 8	No
Try 2	21 : 30	9 : 18	Yes

$21 + 9 = 30$
 $30 + 9 = 39$

$30 : 39 = 10 : 13$

The ratio of Theo's age to Zack's age will be 10 : 13.

6. Mrs. Smith rears chickens and sheep on her farm. The ratio of the total number of legs of the chickens to the total number of legs of the sheep is 4:7. Find the least number of chickens and the least number of sheep on Mrs. Smith's farm.

Ratio	Least Number of Chickens	Least Number of Sheep
4 : 7	2	Not possible
8 : 14	4	Not possible
12 : 21	6	Not possible
16 : 28	8	7

The least number of chickens is 8.
 The least number of sheep is 7.

Percents

Directions: Solve each problem. **SHOW ALL WORK!!**

<p>1. The price of concert tickets was \$5. The singer got $\frac{2}{5}$ of the price. What percent does the singer get?</p> $\frac{2}{5} \cdot \frac{20}{20} = \frac{40}{100} = 40\%$	<p>2. What is 150% of 18?</p> $\frac{3150}{12100} \cdot \frac{189}{1} = \frac{27}{1} = 27$
<p>3. What is 35% of 0.3 kilogram?</p> $\frac{735}{20100} \cdot \frac{3}{10} = \frac{21}{200} = \frac{10.5}{100} = 0.105 \text{ kilograms}$	<p>4. In a room of 80 children, $\frac{3}{4}$ of them wear glasses. 25% of those who wear glasses are boys. How many girls in the room wear glasses?</p> $\frac{3}{14} \cdot \frac{8020}{1} = \frac{60}{1} = 60 \text{ wear glasses}$ $\frac{125}{14100} \cdot \frac{6015}{1} = \frac{15}{1} = 15 \text{ boys}$ <p><i>45 girls wear glasses</i></p>
<p>5. A salesman sold 40% of the jackets he had. He had 150 jackets left. The salesman received \$8,000 from the sales. How much did 5 jackets cost?</p> <p>60% → 150 jackets 10% → 25 jackets 40% → 100 jackets</p> <p>\$8,000 ÷ 100 = \$80 \$80 × 5 = \$400</p> <p>5 jackets costs \$400.</p>	<p>6. Explain the errors made by Jenny.</p> <p>a. 0.7 is 7% or 7 out of 100 <i>She multiplied by 10 instead of 100.</i></p> <p>b. $\frac{7}{10} = \frac{7}{100} = 7\%$ <i>She forgot to multiply the numerator by 10.</i></p> <p>c. $\frac{2}{5} \times 100 = 40\%$ <i>She forgot to insert the percent sign for 100%.</i></p>

Conversions

Directions: Convert each measurement.

Units of capacity	
8 fluid ounces	1 cup
2 cups	1 pint
2 pints	1 quart
4 quarts	1 gallon

This conversion table shows how to convert ounces, cups pints, quarts, and gallons.

Katya's thermos holds 8 pints.
How many cups does it hold?

$8 \times 2 = 16$ 16 cups

Hannah's thermos holds 6 cups.
How many pints does it hold?

$6 \div 2 = 3$ 3 pints

1. 32 fluid ounces <u> 4 </u> cups	2. 6 cups <u> 3 </u> pints	3. 4 quarts <u> 8 </u> pints	4. 16 quarts <u> 4 </u> gallons
5. 16 gallons <u>128</u> pints	6. 5 quarts <u> 20</u> cups	7. 36 cups <u> 9 </u> quarts	8. 72 pints <u> 9 </u> gallons
9. 1 quart <u> 32 </u> fluid ounces	10. 240 fluid ounces <u> 15 </u> pints	11. 7 quarts <u> 28 </u> cups	12. 11 gallons <u> 88 </u> pints

Units of length	
12 inches	1 foot
3 feet	1 yard
5,280 feet	1 mile
1,760 yards	1 mile

This conversion table shows how to convert inches, feet, yards, and miles.

Brian's rope is 60 inches long.
How many feet long is it?

$60 \div 12 = 5$ 5 feet long

Neilika's rope is 3 yards long.
How many inches long is it?

$3 \times 3 = 9$ 9 feet long
 $9 \times 12 = 108$ 108 inches long

13. 36 inches <u> 3 </u> feet	14. 6 feet <u> 2 </u> yards	15. 12 feet <u>144</u> inches	16. 6 yards <u> 18 </u> feet
17. 4 yards <u>144</u> inches	18. 5 yards <u>180</u> inches	19. 15,840 feet <u> 3 </u> miles	20. 3,520 yards <u> 2 </u> miles

Convert 25 centimeters to millimeters. Convert 200¢ to dollars.

$25 \times 10 = 250$ mm $200 \div 100 = \$2$

1. 40 cm <u> 400 </u> mm	2. 15 cm <u> 150 </u> mm	3. 30 mm <u> 3 </u> cm	4. 100 mm <u> 10 </u> cm
5. \$35 <u> 3,500 </u> ¢	6. \$600 <u> 60,000 </u> ¢	7. 450¢ <u> \$ 4.50 </u>	8. 150¢ <u> \$ 1.50 </u>