

## Math 6 Students Summer Math Packet

Dear Parents,

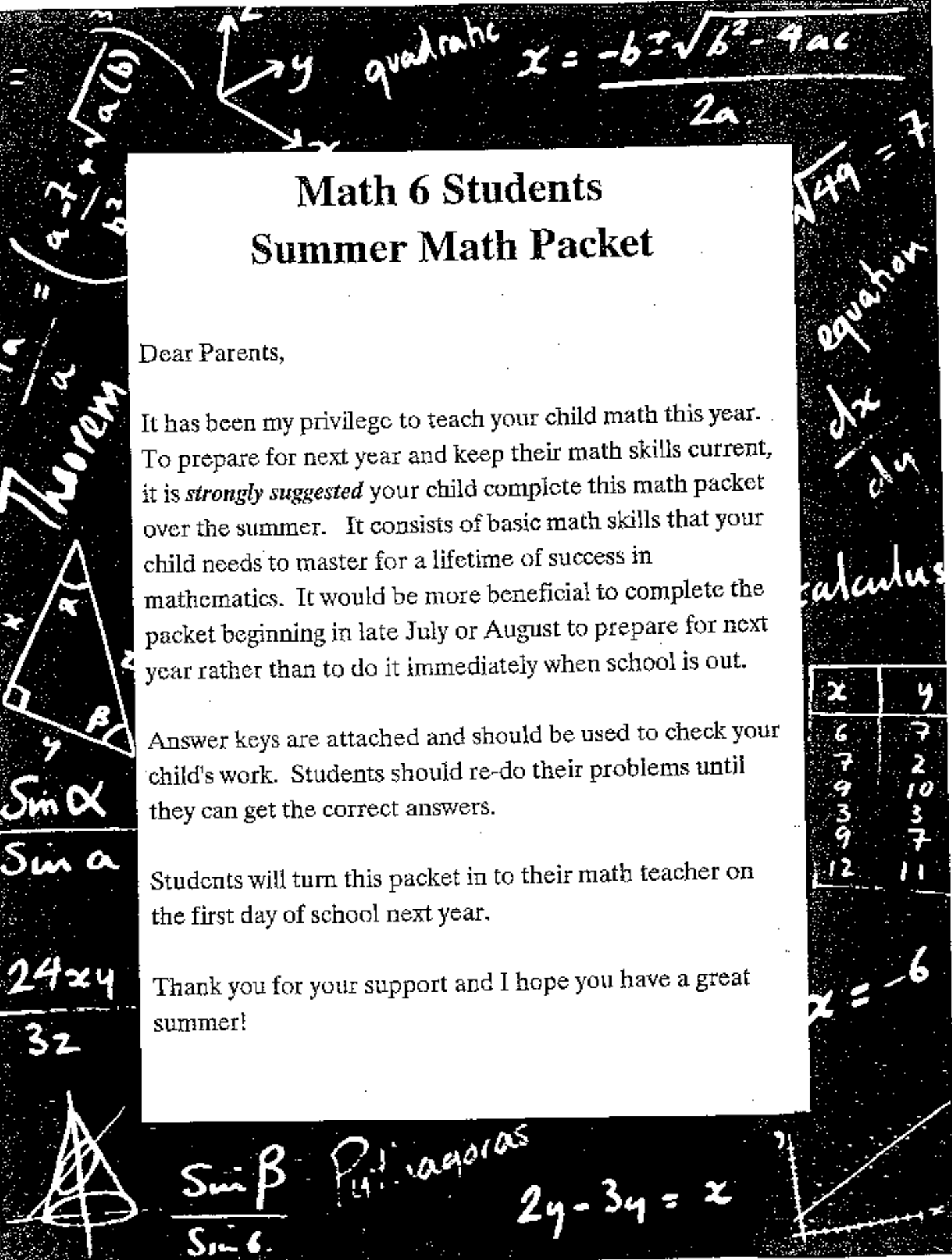
It has been my privilege to teach your child math this year. To prepare for next year and keep their math skills current, it is *strongly suggested* your child complete this math packet over the summer. It consists of basic math skills that your child needs to master for a lifetime of success in mathematics. It would be more beneficial to complete the packet beginning in late July or August to prepare for next year rather than to do it immediately when school is out.

Answer keys are attached and should be used to check your child's work. Students should re-do their problems until they can get the correct answers.

Students will turn this packet in to their math teacher on the first day of school next year.

Thank you for your support and I hope you have a great summer!

x	y
6	7
7	2
9	10
3	3
9	7
12	11



## Adding and Subtracting Whole Numbers and Decimals

Find  $26.9 + 5.47$ .

Line up the decimal points.

$$\begin{array}{r} \uparrow \quad \quad \uparrow \quad \uparrow \\ 26.9 \quad 26.90 \rightarrow \text{Write zeros to} \\ + 5.47 \quad + 5.47 \quad \text{show place value.} \\ \hline 32.37 \\ \uparrow \text{ Place decimal point} \\ \text{in answer.} \end{array}$$
Find  $19 - 3.61$ .

Line up the decimal points.

$$\begin{array}{r} \uparrow \quad \quad \uparrow \quad \uparrow \quad \uparrow \\ 19.00 \quad 19.00 \rightarrow \text{Write zeros to} \\ - 3.61 \quad - 3.61 \quad \text{show place value.} \\ \hline 15.39 \\ \uparrow \text{ Place decimal point} \\ \text{in answer.} \end{array}$$

Find each sum or difference.

1. 
$$\begin{array}{r} 6.48 \\ + 25.70 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 82.00 \\ - 6.18 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 256 \\ + 44.8 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 5 \\ - 1.5 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 2.3 \\ + 258 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 90 \\ - 4.68 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 35.7 \\ + 199.37 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 6.08 \\ - 5.7 \\ \hline \end{array}$$

9.  $844 - 566 = \underline{\hspace{2cm}}$

10.  $17 - 9.9 = \underline{\hspace{2cm}}$

11.  $51.7 + 35 + 719.44 = \underline{\hspace{2cm}}$

12.  $1,234 - 408 = \underline{\hspace{2cm}}$

13.  $9.56 - 1.8 = \underline{\hspace{2cm}}$

14.  $1.7 + 213 + 4.367 = \underline{\hspace{2cm}}$

15. Felice's rain gauge showed these totals: April, 3.52 in.; May, 11 in.; June, 8.6 in. Find the total rainfall for the three months.
- \_\_\_\_\_

16. In 1896, Thomas Burke won the Gold Medal in the Olympic 100-m run with a time of 12 sec. In 1984, Carl Lewis won the medal with a time of 9.99 sec. How much faster did Lewis run the race than Burke did?
- \_\_\_\_\_

## Multiplying and Dividing Whole Numbers and Decimals

Find  $1.2 \times 0.06$ .

Count the number of decimal places in both factors. The total is the number of decimal places in the product.

$$\begin{array}{r} 1.2 \quad \leftarrow \quad 1 \text{ decimal place} \\ \times 0.06 \quad \leftarrow \quad + 2 \text{ decimal places} \\ \hline 0.072 \quad \leftarrow \quad 3 \text{ decimal places} \end{array}$$

Find  $130.5 \div 29$ .

Estimate to place the first digit.  
Place the decimal point in the quotient.

$$\begin{array}{r} \phantom{4} \\ \text{Think: } 30 \overline{)120} \\ \phantom{4} \\ \phantom{29} \overline{)130.5} \\ \phantom{29} \phantom{.} \underline{116} \\ \phantom{29} \phantom{.} \phantom{0} 145 \\ \phantom{29} \phantom{.} \phantom{0} \underline{145} \\ \phantom{29} \phantom{.} \phantom{0} \phantom{0} 0 \end{array}$$

Find each product or quotient.

$$\begin{array}{r} 4 \\ 1. \quad 35 \\ \times 19 \\ \hline 315 \\ 35 \\ \hline \end{array}$$

$$2. \quad \begin{array}{r} 43 \\ \times 1.2 \\ \hline \end{array}$$

$$3. \quad \begin{array}{r} 1. \\ 4 \overline{)6.28} \\ \underline{4.00} \\ 2.28 \end{array}$$

$$4. \quad 23 \overline{)123.28}$$

5.  $200 \times 44 =$  \_\_\_\_\_

6.  $1,488 \div 24 =$  \_\_\_\_\_

7.  $11.7 \times 0.44 =$  \_\_\_\_\_

8.  $2.5 \times 0.25 =$  \_\_\_\_\_

9.  $0.91 \times 8 =$  \_\_\_\_\_

10.  $1,222 \div 47 =$  \_\_\_\_\_

11.  $203.5 \div 55 =$  \_\_\_\_\_

12.  $21.6 \times 12 =$  \_\_\_\_\_

13.  $174.3 \div 30 =$  \_\_\_\_\_

14.  $401.8 \times 82 =$  \_\_\_\_\_

15.  $96.46 \div 26 =$  \_\_\_\_\_

16.  $29.97 \div 9 =$  \_\_\_\_\_

17. Diego and his 3 friends bought 2 pizzas for \$7.98 each. Each person paid the same amount. How much did each person pay for the pizzas?

\_\_\_\_\_

## Problem Solving: Analyze Word Problems

<p>A window display had 9 sweaters. A sign said, "All sweaters \$19.99." What was the total value of all the sweaters in the display?</p>	<p>Operation: Each sweater was worth <b>\$19.99</b>. There were <b>9 sweaters</b>. I will use <b>multiplication</b>: <math>\begin{array}{r} \\$19.99 \\ \times \quad 9 \\ \hline \\$179.91 \end{array}</math></p> <p>Solution: The sweaters were worth <b>\$179.91</b>.</p>
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Write which operation you would use to solve each problem. Then solve.

- For her book report, Annette plans to read a **481-page** book in **13 days**.  
How many pages must she read per day? \_\_\_\_\_
- Georgia bought three birthday presents for her brother, priced at \$17, \$9.95, and \$22.50.  
How much did she spend? \_\_\_\_\_
- Members of the Drama Club have raised \$586.40 of their \$2,000 goal.  
How much do more do they need to raise? \_\_\_\_\_
- Rene paid \$28 for a set of 32 commemorative stamps for her collection.  
What was the cost per stamp? \_\_\_\_\_
- At a gas station, Mr. Carrington bought 12.8 gallons of gas priced at \$1.15 per gallon.  
How much did his purchase cost? \_\_\_\_\_
- Vanessa bought 3 folders. Each folder was \$0.79.  
She paid with a \$5 bill.  
How much change did she get back? \_\_\_\_\_

## Displaying and Interpreting Data

<p>The stem-and-leaf diagram shows points scored by the Wolves in 19 games. What was the lowest number of points the Wolves scored?</p> <p>The lowest stem is 5 The lowest leaf in the 5 stem is 7 The lowest number of points was 57.</p>	<p style="text-align: center;"><b>Wolves Points Per Game</b></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <th style="border-right: 1px solid black; padding: 5px;">stem</th> <th style="padding: 5px;">leaf</th> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">5</td> <td style="padding: 5px;">7 9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">6</td> <td style="padding: 5px;">7 7 8 9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">7</td> <td style="padding: 5px;">3 4 4 5 8</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">8</td> <td style="padding: 5px;">2 2 2 4 7</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">9</td> <td style="padding: 5px;">1 3 6</td> </tr> </table>	stem	leaf	5	7 9	6	7 7 8 9	7	3 4 4 5 8	8	2 2 2 4 7	9	1 3 6
stem	leaf												
5	7 9												
6	7 7 8 9												
7	3 4 4 5 8												
8	2 2 2 4 7												
9	1 3 6												

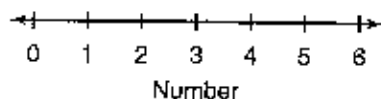
Complete each problem using the data given.

1. Make a line plot of the number of comic books read by Ms. Jones's 15 students last week.

<b>Comic Books Read</b>				
3	4	2	3	4
4	1	2	5	2
6	3	1	3	6

2. What number of comic books was read most often? \_\_\_\_\_

3. What was the range of books read? \_\_\_\_\_



### Math Test Scores

stem	leaf

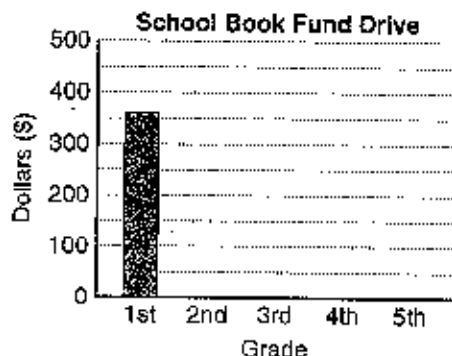
4. Make a stem-and-leaf plot of the following scores: 75, 65, 85, 85, 95, 90, 70, 80.

5. What score appears most often? \_\_\_\_\_

6. What was the range of scores? \_\_\_\_\_

7. Use the data on the school book drive to complete the bar graph.

<b>School Book Fund Drive (\$)</b>			
Grade 1	\$360	Grade 4	\$210
Grade 2	\$280	Grade 5	\$370
Grade 3	\$440		



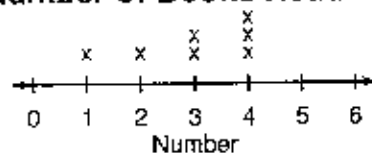
## Mode, Median, and Mean

The **mode** of a data set is the number that occurs most often. A data set can have no mode, one mode, or more than one mode.

The **median** is the middle number in an ordered list. If the number of items is even, the median is halfway between the two middle items.

The **mean** is the sum of the items divided by the number of items.

### Number of Books Read



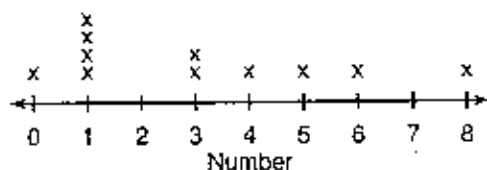
mode is 4                      median is 3

1 2 3 3 4 4 4                      1 2 3 3 4 4 4

$$\text{mean} = \frac{1 + 2 + 3 + 3 + 4 + 4 + 4}{7} = \frac{21}{7} = 3$$

Find the mode, median, and mean for each line plot.

### Number of Aunts and Uncles

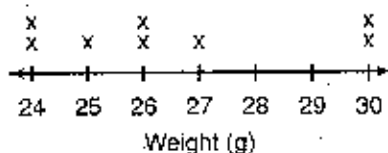


0 1 1 1 1 3 3 4 5 6 8

1. Find the mode(s). \_\_\_\_\_
2. Find the median. \_\_\_\_\_
3. Find the mean. \_\_\_\_\_

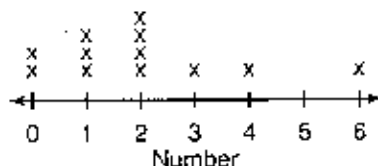
$$\frac{\text{sum of items}}{\text{number of items}} =$$

### Weights of Mineral Samples



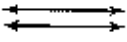
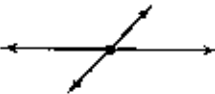
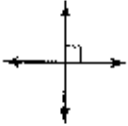
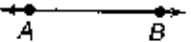
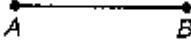
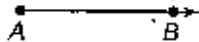




4. Find the mode(s). \_\_\_\_\_
5. Find the median. \_\_\_\_\_
6. Find the mean. \_\_\_\_\_

### Number of Games Won




7. Find the mode(s). \_\_\_\_\_
8. Find the median. \_\_\_\_\_
9. Find the mean. \_\_\_\_\_

# Lines and Angles

			
<p><b>Parallel</b> lines never cross.</p>	<p><b>Intersecting</b> lines cross at one point.</p>	<p><b>Perpendicular</b> lines intersect at <math>90^\circ</math> angles.</p>	
			
<p><b>Line <math>\overleftrightarrow{AB}</math></b> extends forever in both directions.</p>	<p><b>Line segment <math>\overline{AB}</math></b> has two endpoints; <math>A</math> and <math>B</math>.</p>	<p><b>Ray <math>\overrightarrow{AB}</math></b> has one endpoint and extends forever in the other direction.</p>	
			
<p>A <b>right</b> angle has a measure of <math>90^\circ</math>.</p>	<p>A <b>straight</b> angle has a measure of <math>180^\circ</math>.</p>	<p>An <b>acute</b> angle has a measure less than <math>90^\circ</math>.</p>	<p>An <b>obtuse</b> angle has a measure between <math>90^\circ</math> and <math>180^\circ</math>.</p>

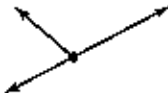
Classify each pair as being parallel, intersecting, or perpendicular. State whether each pair are lines, line segments, or rays.

1.




\_\_\_\_\_

2.




\_\_\_\_\_

3.



\_\_\_\_\_

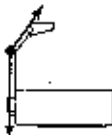
4.



\_\_\_\_\_


Classify each angle as being right, straight, acute, or obtuse.

5.




\_\_\_\_\_

6.




\_\_\_\_\_

7.



\_\_\_\_\_

8.



\_\_\_\_\_

# GCF and LCM

Find the GCF and LCM of 20 and 30.

<p><b>GCF – Greatest Common Factor</b> 378 &amp; 180</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>378</p> <pre>       378      /  \     (3) 126        /  \       (3) 42          /  \         (6) (7)        /  \       (2) (3)             </pre> </div> <div style="text-align: center;"> <p>180</p> <pre>       180      /  \     (2) 90        /  \       (2) 45          /  \         (5) 9          /  \         (3) (3)             </pre> </div> </div> <p>1. Write the Prime Factorization in expanded form:  <math>378 = 2 \times 3 \times 3 \times 3 \times 7</math>  <math>180 = 2 \times 2 \times 3 \times 3 \times 5</math></p> <p>2. Circle all common prime factors.</p> <p>3. Multiply one row: <math>2 \times 3 \times 3 = 18</math></p> <p><b>The GCF of 378 and 180 is 18.</b></p>	<p><b>LCM – Least Common Multiple</b> 42 &amp; 63</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>42</p> <pre>       42      /  \     (6) (7)    /  \   (2) (3)             </pre> </div> <div style="text-align: center;"> <p>63</p> <pre>       63      /  \     (7) 9          /  \         (3) (3)             </pre> </div> </div> <p>1. Write the Prime Factorization in exponent form:  <math>42 = 2 \times 3 \times 7</math>  <math>63 = 3^2 \times 7</math></p> <p>2. Select all prime factors: <math>2 \times 3 \times 7</math></p> <p>3. Identify the highest power for each prime factor: <math>2 \times 3^2 \times 7 = 126</math></p> <p><b>The LCM of 42 and 63 is 126.</b></p>
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Find the GCF and LCM of each pair of numbers.

2. 12 and 15

3. 14 and 28

4. 20 and 24

GCF = \_\_\_\_\_

GCF = \_\_\_\_\_

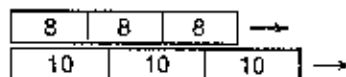
GCF = \_\_\_\_\_

LCM = \_\_\_\_\_

LCM = \_\_\_\_\_

LCM = \_\_\_\_\_

5. Steve stacked 8-ft and 10-ft boards along a wall. After how many feet will the boards first line up?



\_\_\_\_\_

6. Ronnie has \$45. Beth has \$54. They each spent all their money at the CD sale at Sounds Great. If all CDs are the same price, what is the most each CD can cost?

\_\_\_\_\_

## Adding and Subtracting Fractions and Mixed Numbers

Add  $\frac{7}{10} + \frac{1}{6}$ .

<p><i>Write equivalent fractions.</i></p> $\begin{array}{r} \frac{7}{10} = \frac{21}{30} \\ + \frac{1}{6} = \frac{5}{30} \\ \hline \end{array}$ <p>The LCD of 10 and 6 is 30.</p>	<p><i>Add the fractions.</i></p> $\begin{array}{r} \frac{7}{10} = \frac{21}{30} \\ + \frac{1}{6} = \frac{5}{30} \\ \hline \frac{26}{30} \end{array}$	<p><i>Simplify.</i></p> $\begin{array}{r} \frac{7}{10} = \frac{21}{30} \\ + \frac{1}{6} = \frac{5}{30} \\ \hline \frac{26}{30} = \frac{13}{15} \end{array}$
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Subtract  $5\frac{1}{4} - 2\frac{1}{2}$ .

<p><i>Write equivalent fractions.</i></p> $\begin{array}{r} 5\frac{1}{4} = 5\frac{1}{4} \\ - 2\frac{1}{2} = 2\frac{2}{4} \\ \hline \end{array}$ <p>The LCD of 2 and 4 is 4.</p>	<p><i>Regroup.</i> <i>Subtract the fractions.</i></p> $\begin{array}{r} 5\frac{1}{4} = 5\frac{1}{4} = 4\frac{5}{4} \\ - 2\frac{1}{2} = 2\frac{2}{4} = 2\frac{2}{4} \\ \hline \frac{3}{4} \end{array}$	<p><i>Subtract the whole numbers.</i></p> $\begin{array}{r} 5\frac{1}{4} = 5\frac{1}{4} = 4\frac{5}{4} \\ - 2\frac{1}{2} = 2\frac{2}{4} = 2\frac{2}{4} \\ \hline 2\frac{3}{4} \end{array}$
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Find each sum or difference.

1.  $2\frac{3}{8} = 2\frac{\quad}{24}$   
 $+ 4\frac{1}{6} = 4\frac{\quad}{24}$   

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2.  $7\frac{1}{5} = 6\frac{\quad}{5}$   
 $- 2\frac{4}{5} = 2\frac{\quad}{5}$   

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3.  $3\frac{1}{5} =$   
 $+ 4\frac{1}{6} =$   

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4.  $\frac{2}{3} + \frac{1}{6} =$  \_\_\_\_\_

5.  $\frac{7}{12} - \frac{1}{2} =$  \_\_\_\_\_

6.  $\frac{7}{8} + \frac{7}{10} =$  \_\_\_\_\_

7.  $\frac{4}{5} - \frac{3}{4} =$  \_\_\_\_\_

8.  $2\frac{7}{8} - 1\frac{1}{4} =$  \_\_\_\_\_

9.  $2\frac{5}{6} + 1\frac{3}{4} =$  \_\_\_\_\_

10.  $6\frac{5}{12} - 3\frac{5}{8} =$  \_\_\_\_\_

11.  $2\frac{1}{5} + 3\frac{9}{10} =$  \_\_\_\_\_

12.  $4\frac{5}{8} - 3\frac{3}{4} =$  \_\_\_\_\_

13. Randy had two skateboards that together measured  $5\frac{1}{3}$  ft.

One skateboard was  $2\frac{3}{5}$  ft. How long was the other? \_\_\_\_\_

## Multiplying and Dividing Fractions and Mixed Numbers

Find  $1\frac{3}{5} \times \frac{5}{6}$ .

<p>Rewrite <math>1\frac{3}{5}</math> as an improper fraction.</p> $1\frac{3}{5} = \frac{8}{5}$	<p>Multiply numerators. Multiply denominators.</p> $\frac{8}{5} \times \frac{5}{6} = \frac{40}{30}$ <p><i>reduce</i> <math>\frac{8}{5} \times \frac{5}{6} = \frac{4}{3} = 1\frac{1}{3}</math></p>	<p>Simplify.</p> $\frac{40}{30} = \frac{40 \div 10}{30 \div 10} = \frac{4}{3} = 1\frac{1}{3}$
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Find  $\frac{4}{9} \div 2\frac{2}{3}$ .

<p>Rewrite <math>2\frac{2}{3}</math> as an improper fraction.</p> $2\frac{2}{3} = \frac{8}{3}$	<p><i>Multiply by the reciprocal</i></p> <p>Rewrite as a <b>product</b> using the <b>reciprocal</b>.</p> $\frac{4}{9} \div \frac{8}{3} = \frac{4}{9} \times \frac{3}{8}$ <p>Interchange numerator and denominator.</p>	<p>Multiply and simplify.</p> $\frac{4}{9} \times \frac{3}{8} = \frac{4 \times 3}{9 \times 8} = \frac{12}{72} = \frac{1}{6}$
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Find each product or quotient.

1.  $\frac{4}{5} \times \frac{3}{8} = \frac{12}{40} = \underline{\hspace{2cm}}$

2.  $\frac{2}{7} \div \frac{1}{3} = \frac{2}{7} \times \frac{3}{1} = \underline{\hspace{2cm}}$

3.  $\frac{6}{7} \times \frac{7}{12} = \underline{\hspace{2cm}}$

4.  $\frac{4}{5} \div \frac{2}{3} = \underline{\hspace{2cm}}$

5.  $\frac{2}{5} \times \frac{1}{4} = \underline{\hspace{2cm}}$

6.  $\frac{7}{8} \div \frac{14}{3} = \underline{\hspace{2cm}}$

7.  $1\frac{3}{8} \times \frac{8}{11} = \underline{\hspace{2cm}}$

8.  $7 \div 2\frac{1}{3} = \underline{\hspace{2cm}}$

9.  $5\frac{2}{5} \times \frac{5}{9} = \underline{\hspace{2cm}}$

10.  $6\frac{1}{4} \div 3\frac{3}{4} = \underline{\hspace{2cm}}$

11.  $1\frac{1}{2} \times 1\frac{1}{3} = \underline{\hspace{2cm}}$

12.  $2\frac{3}{4} \div 10\frac{1}{2} = \underline{\hspace{2cm}}$

13. Joy had two square coasters. The total length around both coasters was  $32\frac{1}{2}$  inches. How long was each side? \_\_\_\_\_

## Problem Solving: Analyze Strategies

Gem watches first sold in 1995. The price was lowered \$5 in 1996, halved in 1997, and raised \$2 in 1998. If the 1998 price was \$9, how much did the watches sell for in 1995?

Year	What Happened	Conclusion
1998	Price raised \$2 to \$9.	Price was $\$9 - \$2 = \$7$ .
1997	Price halved to \$7.	Price was $\$7 \times 2 = \$14$ .
1996	Price lowered \$5 to \$14.	Price was $\$14 + \$5 = \$19$ .

Solution: The watches sold for \$19 in 1995.

### Problem Solving Strategies

- Use Objects/Act It Out
- Draw a Picture
- Look For a Pattern
- Guess and Check
- Make an Organized List
- Make a Table
- Solve a Simpler Problem
- **Work Backward**

Use any strategy to solve.

1. After Marshall's alarm went off, he spent  $\frac{3}{4}$  hr getting ready for school. He walked  $\frac{1}{8}$  hr to the bus stop, waited  $\frac{1}{12}$  hr, rode  $\frac{1}{4}$  hr, and arrived at school at 8:30 A.M. What time did his alarm go off?  
\_\_\_\_\_
2. Jill paid \$36 for calendars marked down \$5 apiece from the original price. If she had bought them at the original price, she would have gotten 5 fewer calendars for the same price. How many calendars did she buy?  
\_\_\_\_\_
3. Cody took his dog, cat, hamster, and parakeet to the vet's office. The vet checked the hamster before the cat, the dog after the parakeet, and the cat before the parakeet. Which pet was checked third?  
\_\_\_\_\_
4. Anna, Gina, and Ted divided up a box of post cards. Anna took one-fourth of the cards. Gina took half of what remained. Ted took the remaining 6 cards. How many cards were in the box?  
\_\_\_\_\_
5. A vending machine accepted any combination of nickels, dimes, and quarters that added to \$0.40. How many different combinations of coins were possible?  
\_\_\_\_\_

## Solving Equations

Solve  $n + 3 = 11$ .Solve  $6k = 30$ .

$n + 3 = 11$	Think: What number plus 3 equals 11?	$6k = 30$	Think: What number times 6 equals 30?
$8 + 3 = 11$	Use mental math.	$6 \times 5 = 30$	Use mental math.
$11 = 11$	Check to see that the equation is true.	$30 = 30$	Check to see that the equation is true.
$n = 8$	Write the solution.	$k = 5$	Write the solution.

1. Solve  $n - 7 = 10$ .2. Solve  $p \div 8 = 7$ .

$n - 7 = 10$

Think: What number minus 7 equals 10?

$p \div 8 = 7$

Think: What number divided by 8 equals 7?

$\square - 7 = 10$

Use mental math.

$\square \div 8 = 7$

Use mental math.

$\square = 10$

Check.

$\square = 7$

Check.

$n = \underline{\hspace{2cm}}$

Write the solution.

$p = \underline{\hspace{2cm}}$

Write the solution.

Solve each equation.

3.  $k + 11 = 20$

$k = \underline{\hspace{2cm}}$

4.  $v - 9 = 14$

$v = \underline{\hspace{2cm}}$

5.  $d + 3 = 100$

$d = \underline{\hspace{2cm}}$

6.  $6a = 90$

$a = \underline{\hspace{2cm}}$

7.  $t \div 4 = 30$

$t = \underline{\hspace{2cm}}$

8.  $5d = 250$

$d = \underline{\hspace{2cm}}$

9.  $5 + r = 40$

$r = \underline{\hspace{2cm}}$

10.  $4s = 204$

$s = \underline{\hspace{2cm}}$

11.  $400 \div b = 25$

$b = \underline{\hspace{2cm}}$

12. Brenda has finished  $m$  miles of a 15-mi canoe race. She has 6 miles to go. Write an equation describing the situation. Then solve the equation to find how far she has gone.

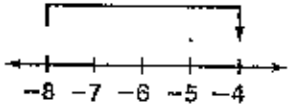
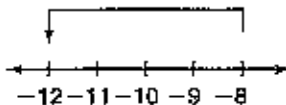
\_\_\_\_\_

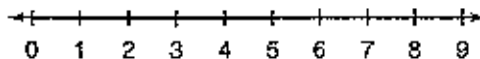
13. Graham bought  $s$  shirts at \$14 per shirt. The bill came to \$70. Write an equation describing the situation. Then solve the equation to find how many shirts he bought.

\_\_\_\_\_

## Integers

Find the sum, difference, product, and quotient of  $-8$  and  $+4$ .

<p><b>Sum</b> Start at <math>-8</math>. Go <b>right</b> 4 to add <math>+4</math>. (To add a <b>negative</b>, go left.)</p>  <p><math>-8 + (+4) = -4</math></p>	<p><b>Difference</b> Start at <math>-8</math>. Go <b>left</b> 4 to subtract <math>+4</math>. (To subtract a <b>negative</b>, go right.)</p>  <p><math>-8 - (+4) = -8 + (-4) = -12</math></p>
<p><math>3 + 2 = 5</math> <math>-3 + -2 = -5</math> } Same signs <math>3 + -2 = 1</math> <math>-3 + 2 = -1</math> } Different signs</p>	<p>"Add the opposite" <math>6 - 4</math> changes to <math>6 + -4 = 2</math> <math>6 - -4</math> changes to <math>6 + +4 = 10</math> <math>-6 - 4</math> changes to <math>-6 + -4 = -10</math> <math>-6 - -4</math> changes to <math>-6 + +4 = -2</math></p>

Find the sum, difference, product, or quotient of  $+6$  and  $-3$ .

1.  $+6 + (-3) =$  \_\_\_\_\_

2.  $+6 - (-3) = +6 + ( \quad ) =$  \_\_\_\_\_

Find the sum, difference, product, or quotient.

5.  $4 + 5 =$  \_\_\_\_\_

6.  $-3 - (+2) =$  \_\_\_\_\_

9.  $14 - (+5) =$  \_\_\_\_\_

10.  $-6 + (-5) =$  \_\_\_\_\_

12.  $-5 + 5 =$  \_\_\_\_\_

13.  $9 - (+8) =$  \_\_\_\_\_

14.  $13 - (+13) =$  \_\_\_\_\_

16.  $2 + 7 =$  \_\_\_\_\_

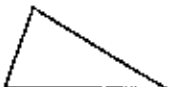

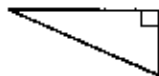

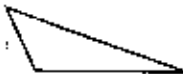

17.  $0 - 8 =$  \_\_\_\_\_

18.  $14 + (-15) =$  \_\_\_\_\_

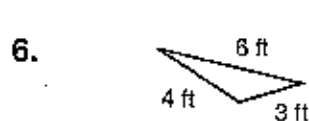
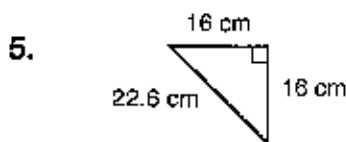
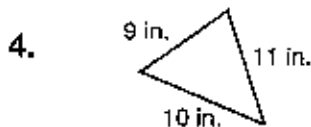
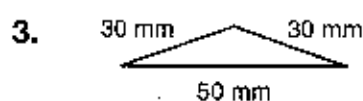
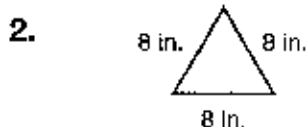
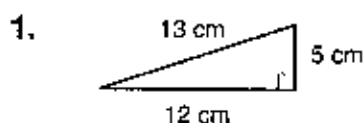
20. Carlos started at sea level, climbed a cliff to a height of  $+14$  m, then dived 19 m. Find the level at which his dive ended. \_\_\_\_\_

# Triangles

Triangles can be classified by their angles or sides.

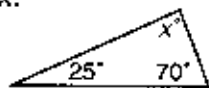
Angles	Sides
	
<p>An <b>acute</b> triangle has three acute angles.</p>	<p>An <b>equilateral</b> triangle has three sides of the same length.</p>
	
<p>A <b>right</b> triangle has exactly one right angle.</p>	<p>An <b>isosceles</b> triangle has two sides of the same length.</p>
	
<p>An <b>obtuse</b> triangle has exactly one obtuse angle.</p>	<p>A <b>scalene</b> triangle has no sides of equal length.</p>

Classify each triangle by its angles and its sides.



The sum of the measures of the angles of a triangle is  $180^\circ$ .

Find  $x$ .



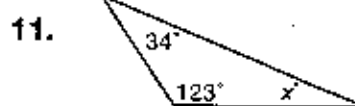
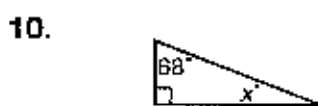
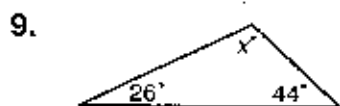
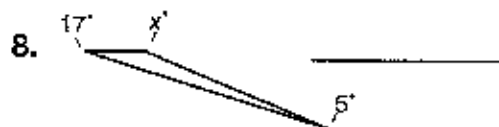
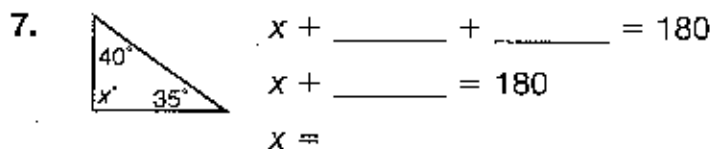
$$x + 25 + 70 = 180$$

$$x + 95 = 180$$

$$x = 85^\circ$$

Think: What number plus 95 equals 180?

Find  $x$ .



## Graphing Equations

Graph the equation  $y = x + 2$ .

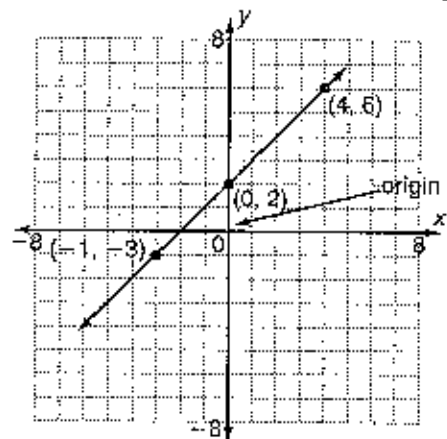
$x$	$y$	
4	6	Make a table. Choose values for $x$ to determine values for $y$ .
0	2	
-3	-1	

Each pair of values represents the **coordinates** of a point.

Find (4, 6) by counting from the **origin** +4 (right), then +6 (up). Place a point.

Find (0, 2) and (-1, -3) and place points. For negative values, move left or down.

Draw a line connecting the points.



Plot each point. Write the coordinates beside the point.

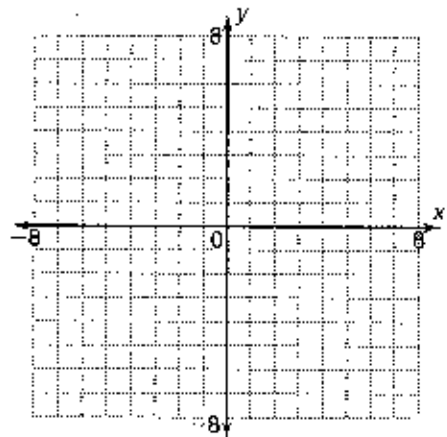
1. To plot (-5, 4), begin at the \_\_\_\_\_.

Count 5 \_\_\_\_\_ (left/right).

Then count 4 \_\_\_\_\_ (up/down).

Write the coordinates (-5, 4) beside the point.

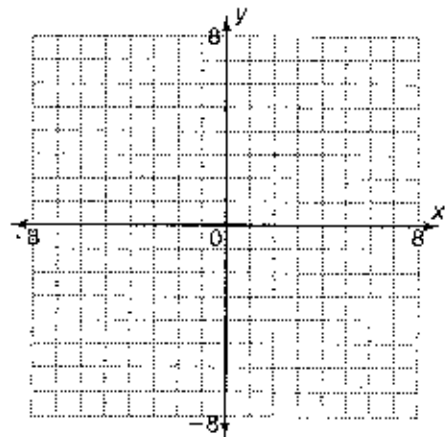
2. (6, 3) 3. (-2, -5) 4. (4, 0) 5. (1, -7)



Graph and label each equation.

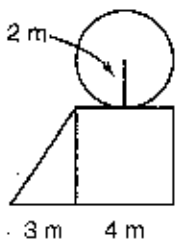
6.  $y = 2x - 3$  7.  $y = 6 - x$  8.  $y = -4 + x$

$x$	$y$	$x$	$y$	$x$	$y$
4					
2					
0					
-3					



## Area of Irregular Figures

Find the area of the shape below.



Add the areas of the shapes.

circle:  $\pi \times 2^2 = 3.14 \times 4 = 12.56 \text{ m}^2$

triangle:  $\frac{1}{2} \times 3 \times 4 = 6 \text{ m}^2$

square:  $4^2 = 16 \text{ m}^2$

area =  $12.56 + 6 + 16 = 34.56 \text{ m}^2$

*area formulas*

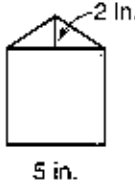
area of **circle** =  $\pi \times r^2$

area of **triangle** =  $\frac{1}{2} \times b \times h$

area of **square** =  $s^2$

area of **rectangle** =  $l \times w$

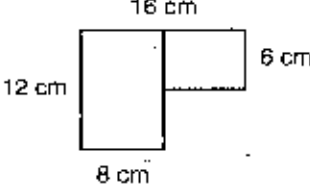
Find the area of each shape. Use 3.14 for  $\pi$ .

1. 

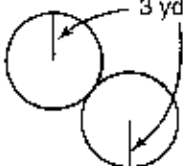
triangle:  $\frac{1}{2} \times 5 \times 2 = \underline{\hspace{2cm}} \text{ in}^2$

square:  $5^2 = \underline{\hspace{2cm}} \text{ in}^2$

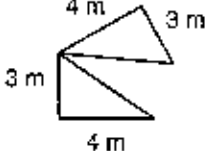
area =  $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ in}^2$

2. 

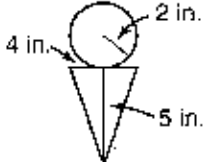
$\underline{\hspace{2cm}}$

3. 

$\underline{\hspace{2cm}}$

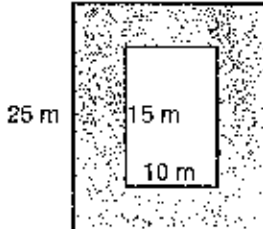
4. 

$\underline{\hspace{2cm}}$

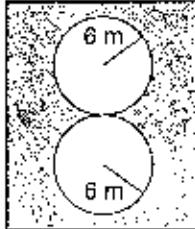
5. 

$\underline{\hspace{2cm}}$

Menlo Park has two pools. Find the area of shaded walkways around each pool.

6. 

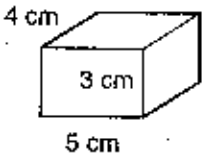
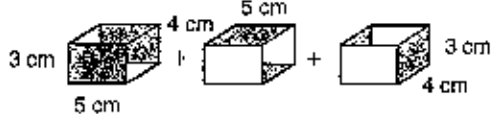
$\underline{\hspace{2cm}}$

7. 

$\underline{\hspace{2cm}}$

## Surface Area and Volume

Find the surface area and volume of the rectangular prism.

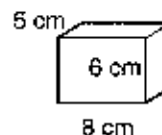
	<p><b>Surface area (SA)</b> is the sum of areas of all prism faces.</p>  $2(3 \times 5) + 2(4 \times 5) + 2(4 \times 3)$ $SA = 2(15) + 2(20) + 2(12) = 94 \text{ cm}^2$	<p><b>Volume (V)</b> is the number of cubic units an object contains. Multiply length <math>\times</math> width <math>\times</math> height to find the volume of the prism.</p> $V = 5 \times 4 \times 3 = 60 \text{ cm}^3$
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Find the surface area and volume of each rectangular prism.

1. Surface area = \_\_\_\_\_

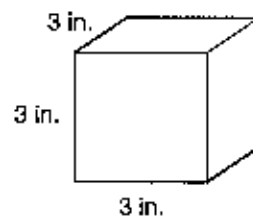
$$2(\_\_ \times \_\_) + 2(\_\_ \times \_\_) + 2(\_\_ \times \_\_) = \_\_\_\_\_\_ \text{ cm}^2$$

$$\text{Volume} = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_\_\_\_ \text{ cm}^3$$



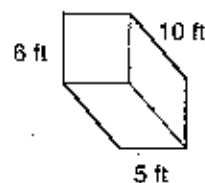
2. Surface area = \_\_\_\_\_

$$\text{Volume} = \_\_\_\_\_\_$$



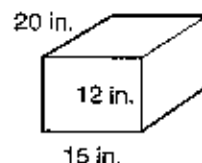
3. Surface area = \_\_\_\_\_

$$\text{Volume} = \_\_\_\_\_\_$$

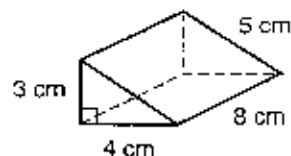


4. Surface area = \_\_\_\_\_

$$\text{Volume} = \_\_\_\_\_\_$$



5. Find the surface area of the triangular prism. \_\_\_\_\_



## Ratio and Proportion

You can use **ratios** to compare two quantities.



1 cat to 3 dogs

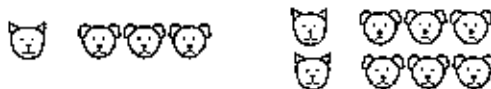
You can write ratios as:

words 1 to 3

with a colon 1:3

as a fraction  $\frac{1}{3}$

A statement that two ratios are equal is called a **proportion**.



$$\frac{1 \text{ cat}}{3 \text{ dogs}} = \frac{2 \text{ cats}}{6 \text{ dogs}}$$

$$\frac{1}{3} = \frac{2}{6} \text{ is a proportion.}$$

Write each ratio. Use words, a colon, or a fraction.

1. Write the ratio of stars to planets.



\_\_\_\_\_

2. An orchestra has 9 brass players and 10 woodwind players. Write the ratio of brass to woodwinds.

\_\_\_\_\_

Tell if the ratios are a proportion. Write yes or no.

3.  $\frac{1}{2} = \frac{8}{16}$  \_\_\_\_\_

4.  $\frac{2}{3} = \frac{6}{8}$  \_\_\_\_\_

5.  $\frac{4}{10} = \frac{6}{15}$  \_\_\_\_\_

6.  $\frac{4}{14} = \frac{6}{20}$  \_\_\_\_\_

7. The ratio of boys to girls in Weekend Volunteers is 5 to 6. The are 24 girls in the group. How many boys are there? \_\_\_\_\_

8. The ratio of the width of a photo to its height is 4 to 5. The photo's width is 12 in. What is its height? \_\_\_\_\_

9. The Ravens won 9 baseball games for every 4 that they lost. If they lost 28 games, how many games did they win? \_\_\_\_\_

10. Carlos received 84 votes. That was  $\frac{3}{7}$  of every 7 votes cast in the Class President election. How many votes were cast? \_\_\_\_\_

**Decimals, Fractions, Percents**

Find 20% of 25.

Find 20% of 25.

**Using a fraction:**

Write 20% as a fraction.

$$20\% = \frac{20}{100} = \frac{20 \times 1}{20 \times 5} = \frac{1}{5}$$

$$\text{Multiply: } \frac{1}{5} \times 25 = 5$$

**Using a decimal:**

Write 20% as a decimal.

$$20\% = 0.20$$

$$\text{Multiply: } 0.20 \times 25 = 5$$

1. Find 25% of 60.

**Using a fraction:**

$$25\% = \frac{25}{100} = \frac{25 \times \cancel{1}}{25 \times \cancel{4}} = \frac{1}{4}$$

$$\text{Multiply: } \frac{1}{4} \times 60 = 15$$

2. Find 60% of 20.

**Using a decimal:**

$$60\% = 0.60$$

$$\text{Multiply: } 0.60 \times 20 = 12$$

Write the percent as a fraction.

3. 75% =  $\frac{3}{4}$

4. 50% =  $\frac{1}{2}$

5. 40% =  $\frac{2}{5}$

6. 10% =  $\frac{1}{10}$

Write the percent as a decimal.

7. 94% = 0.94

8. 13% = 0.13

9. 30% = 0.30

10. 2% = 0.02

Find the percent of each. You may use any method.

11.  $0.05 \times 30$   
5% of 30 = 1.5

13. 90% of 35 = 31.5

15. 14% of 62 = 8.68

12. 25% of 16 = 4

14. 70% of 25 = 17.5

16. 80% of 200 = 160

17. Last weekend, Raptor Club members spotted 160 hawks. This weekend they saw 70% as many as they saw last weekend. How many hawks did they see this weekend? \_\_\_\_\_

18. Only 40% of the Raptor Club's members returned the club's hawk survey. The club has 65 members. How many took part in the survey? \_\_\_\_\_

## Probability

What is the probability of spinning a square?

$\frac{2}{4}$  ← number of squares  
4 ← total possible outcomes

The probability is  $\frac{2}{4}$  or  $\frac{1}{2}$ .



What is the probability of spinning a circle?

$\frac{1}{4}$  ← number of circles  
4 ← total possible outcomes

The probability is  $\frac{1}{4}$ .

Complete.

1. What is the probability of spinning a C?

← number of Cs  
 ← total possible outcomes



The probability is \_\_\_\_\_.

2. What is the probability of spinning a B?

← number of Bs  
 ← total possible outcomes

The probability is \_\_\_\_\_.

Find each probability.



3. spinning an 8 \_\_\_\_\_

4. spinning a 7 \_\_\_\_\_

5. spinning an 8 or 9 \_\_\_\_\_

6. spinning a 7, 8, or 9 \_\_\_\_\_

A number cube has 6 sides numbered 1, 2, 3, 4, 5, and 6. Find each probability.

7. rolling a 6 \_\_\_\_\_

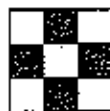
8. rolling an odd number \_\_\_\_\_

9. rolling 4, 5, or 6 \_\_\_\_\_

10. rolling anything but 2 \_\_\_\_\_

11. A hat contains 20 cards, each printed with a different number from 1 to 20. If you pick a card without looking, what is the probability that it will be divisible by 7? \_\_\_\_\_

12. Jennie closed her eyes and threw a dart at the target. It stuck in one of the squares. What is the probability that the square was shaded? \_\_\_\_\_



13. A phone book page lists 225 residential numbers and 75 business numbers. If you point to a number randomly, what is the probability that it will be a business number? \_\_\_\_\_

<p><b>PEMDAS:</b> Please Excuse My Dear Aunt Sally</p> <p><b>P</b>arenthesis</p> <p><b>E</b>xponents</p> <p><b>M</b>ultiplication &amp; <b>D</b>ivision (left to right)</p> <p><b>A</b>ddition &amp; <b>S</b>ubtraction (left to right)</p>	<p><b>Example 1:</b></p> <p><math>12 + (36 \div 4) \times 2^3</math></p> <p><math>12 + 9 \times 2^3</math> (Parenthesis)</p> <p><math>12 + 9 \times 6</math> (Exponents)</p> <p><math>12 + 54</math> (Multiplication)</p> <p>66 (Addition)</p>
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<p><b>Example 2:</b></p> <p><math>24 \div 3 \times 7 - 20 + 4</math></p> <p><math>8 \times 7 - 20 + 4</math> (Division)</p> <p><math>56 - 20 + 4</math> (Multiplication)</p> <p><math>36 + 4</math> (Subtraction)</p> <p>40 (Addition)</p>	<p><b>Example 3:</b></p> <p><math>(13 - 5) \times 2 + 3^2</math></p> <p><math>8 \times 2 + 3^2</math> (Parenthesis)</p> <p><math>8 \times 2 + 9</math> (Exponents)</p> <p><math>16 + 9</math> (Multiplication)</p> <p>25 (Addition)</p>
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Simplify the following problems following Order of Operations.  
 Rewrite each line performing one operation on a line.

1.  $(2 + 3 \times 4) - 2 \times 5$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2.  $3 \times 6 \div 2 + 4 \times 5$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3.  $2^2 + (12 - 4) \div 2$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4.  $18 - 10 \div 5 \times 4$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5.  $21 - 17 + 3 - 1$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6.  $36 \div 4 \times 2 \div 6 \times 3$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. Write a problem using 2, 4, 6, and 7 to get the answer 21 following Order of Operations. \_\_\_\_\_

# Summer Review Answer Key

Complete your work and then correct your answers. Re-do anything you do not have correct.

## Review 1

1. 32.18
2. 75.82
3. 300.8
4. 3.5
5. 260.3
6. 85.32
7. 235.07
8. 0.38
9. 278
10. 7.1
11. 806.14
12. 826
13. 7.76
14. 219.067
15. 23:12 in.
16. 2.01 sec

## Review 2

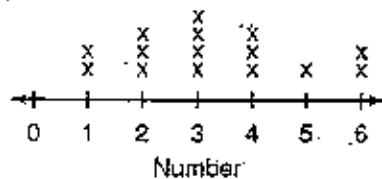
1. 665
2. 51.6
3. 1.57
4. 5.36
5. 8,800
6. 62
7. 5.148
8. 0.625
9. 7.28
10. 26
11. 3.7
12. 259.2
13. 5.81
14. 32,947.6
15. 3.71
16. 3.33
17. \$3.99

## Review 3

1. division; 37 pages per day
2. addition; \$49.45
3. subtraction; \$1,413.6
4. division; \$0.875 per stamp
5. multiplication; \$14.72
6. multiplication and subtraction; \$2.63

## Review 4

### 1. Number of Comic Books Read



2. 3 books
3. 5 books

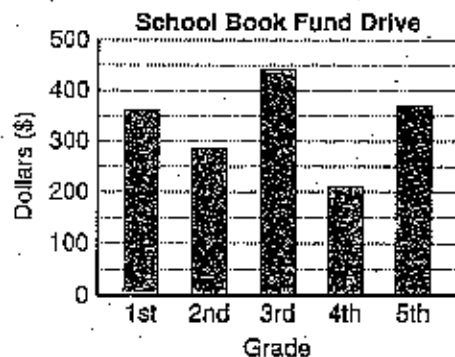
### 4. Math Test Scores

stem	leaf
6	5
7	0 5
8	0 5 5
9	0 5

5. 85 points

6. 30 points

7.



## Review 5

1. 1
2. 3
3. 3
4. 24 g, 26 g, 30 g
5. 26 g
6. 26.5 g
7. 2 games
8. 2 games
9. 2 games

## Review 6

1. perpendicular; rays
2. intersecting; rays
3. parallel; lines
4. perpendicular; line segments
5. obtuse
6. right
7. straight
8. acute

## Review 7

1. GCF = 3      LCM = 36
2. GCF = 3      LCM = 60
3. GCF = 7      LCM = 28
4. GCF = 4      LCM = 120
5. 40 ft              6. \$9

## Review 8

1.  $6\frac{13}{24}$
2.  $4\frac{2}{5}$
3.  $7\frac{11}{30}$
4.  $\frac{5}{6}$
5.  $\frac{1}{12}$
6.  $1\frac{23}{40}$
7.  $\frac{1}{20}$
8.  $1\frac{5}{8}$
9.  $4\frac{7}{12}$
10.  $2\frac{19}{24}$
11.  $6\frac{1}{10}$
12.  $\frac{7}{8}$
13.  $2\frac{11}{15}$  ft

## Review 9

1.  $\frac{3}{10}$
2.  $\frac{6}{7}$
3.  $\frac{1}{2}$
4.  $1\frac{1}{5}$
5.  $\frac{1}{10}$
6.  $\frac{3}{16}$
7. 1
8. 3
9. 3
10.  $1\frac{2}{3}$
11. 2
12.  $\frac{11}{42}$
13.  $4\frac{1}{16}$  in.

## Review 10

1. 7:15 A.M.
2. 9 calendars
3. parakeet
4. 16 cards
5. 7 combinations (QDN, QNNN, DDDD, DDDNN, DDNNNN, DNNNNNN, NNNNNNNN)

## Review 12

1. 17
2. 56
3. 9
4. 23
5. 300
6. 15
7. 120
8. 50
9. 35
10. 51
11. 16
12.  $m + 6 = 15$ ;  $m = 9$  miles
13.  $14s = 70$ ;  $s = 5$  shirts

## Review 13

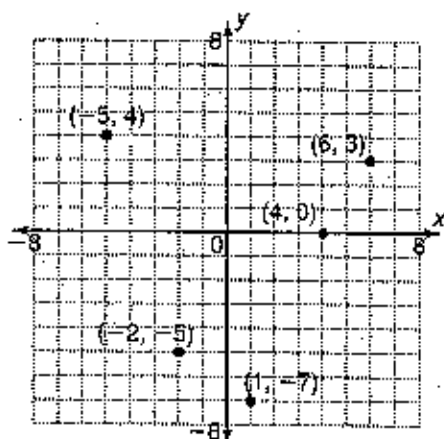
1. 3
2. 9
5. 9
6. -5
9. 9
10. -11
12. 0
13. 1
14. 0
16. 9
17. -8
18. -1
20. -5 m

## Review 14

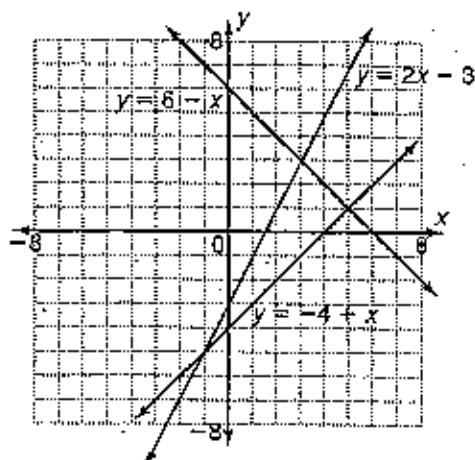
1. right, scalene
2. acute, equilateral
3. obtuse, isosceles
4. acute, scalene
5. right, isosceles
6. obtuse, scalene
7.  $105^\circ$
8.  $158^\circ$
9.  $110^\circ$
10.  $22^\circ$
11.  $23^\circ$

## Review 15

1. origin; left; up
- 1-5.



- 6-8.



## Review 16

1.  $30 \text{ in}^2$
2.  $144 \text{ cm}^2$
3.  $18\pi \text{ yd}^2$  or  $56.52 \text{ yd}^2$
4.  $12 \text{ m}^2$
5.  $10 + 4\pi \text{ in}^2$  or  $22.56 \text{ in}^2$
6.  $350 \text{ m}^2$
7.  $500 - 72\pi \text{ m}^2$  or  $273.92 \text{ m}^2$

## Review 17

1.  $236 \text{ cm}^2$ ;  $240 \text{ cm}^3$
2.  $54 \text{ in}^2$ ;  $27 \text{ in}^3$
3.  $280 \text{ ft}^2$ ;  $300 \text{ ft}^3$
4.  $1,440 \text{ in}^2$ ;  $3,600 \text{ in}^3$
5.  $108 \text{ cm}^2$

## Review 18

- 3 to 5, 3:5, or  $\frac{3}{5}$
- 9 to 10, 9:10, or  $\frac{9}{10}$
- yes
- no
- yes
- no
- 20 boys
- 15 in.
- 63 games
- 196 votes

## Review 19

- 15
- 12
- $\frac{3}{4}$
- $\frac{1}{2}$
- $\frac{2}{5}$
- $\frac{1}{10}$
- 0.94
- 0.13
- 0.3
- 0.02
- 1.5
- 4
- 31.5
- 17.5
- 8.68
- 160
- 112 hawks
- 26 members

## Review 20

- $\frac{3}{8}$
- $\frac{1}{4}$
- $\frac{1}{2}$
- $\frac{1}{3}$
- $\frac{2}{3}$
- 1
- $\frac{1}{6}$
- $\frac{1}{2}$
- $\frac{1}{2}$
- $\frac{5}{6}$
- $\frac{1}{10}$
- $\frac{4}{9}$
- $\frac{1}{4}$

## Review 21

- $(2+3 \times 4) - 2 \times 5$   
 $(2+12) - 2 \times 5$   
 $14 - 2 \times 5$   
 $14 - 10$   
4
- $3 \times 6 + 2 + 4 \times 5$   
 $18 + 2 + 4 \times 5$   
 $9 + 4 \times 5$   
 $9 + 20$   
29
- $2^3 + (12 - 4) + 2$   
 $2^3 + 8 + 2$   
 $4 + 8 + 2$   
 $4 + 4$   
8
- $18 - 10 \div 5 \times 4$   
 $18 - 2 \times 4$   
 $18 - 8$   
10
- $21 - 17 + 3 - 1$   
 $4 + 3 - 1$   
 $7 - 1$   
6
- $36 \div 4 \times 2 \div 6 \times 3$   
 $9 \times 2 \div 6 \times 3$   
 $18 \div 6 \times 3$   
 $3 \times 3$   
9
- Sample:  $7 \times 6 \div (4 \div 2)$   
 $7 + 6 + 4 \times 2$