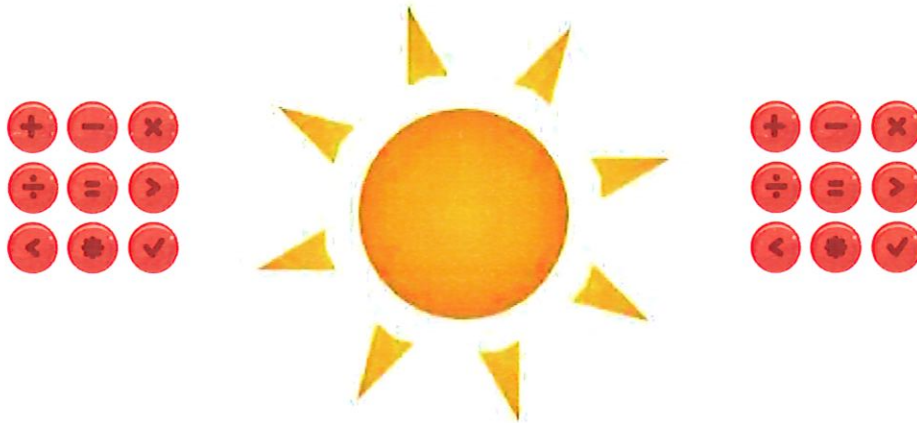


SUMMER MATH PACKET

Ms. Freeman's Class

Rising 6th Grade

June-August, 2023



Name _____

Dear Students and Families -

This packet provides a range of activities that review the math skills we learned this past year. Students should look through the entire packet to see what topics are covered and that examples are provided for each section. (You can also review skills online with the video links we used in class.) Complete 2 pages each week (front and back of one page) in order to complete the packet by the first day of school. **DO NOT WAIT UNTIL AUGUST** to start! This should be a gentle review of skills to prepare you for a smooth start when we return in the Fall.

Parent signature: _____

Date: _____

Name _____

Review

2

Adding and Subtracting Decimals

Find $1.7 + 2.45$.Find $36.57 - 4.6$.

Line up the decimal points.

$$\begin{array}{r}
 \downarrow \quad \quad \uparrow \\
 1.7 \quad \quad 1.70 \leftarrow \text{Write zeros to} \\
 + 2.45 \quad + 2.45 \quad \text{show place value.} \\
 \hline
 \quad \quad 4.15 \\
 \uparrow \text{ Place decimal point} \\
 \text{in answer.}
 \end{array}$$

Line up the decimal points.

$$\begin{array}{r}
 \downarrow \quad \quad \uparrow \quad \uparrow \\
 36.57 \quad 36.57 \leftarrow \text{Write zeros to} \\
 - 4.6 \quad - 4.60 \quad \text{show place value.} \\
 \hline
 \quad \quad 31.97 \\
 \uparrow \text{ Place decimal point} \\
 \text{in answer.}
 \end{array}$$

Find each sum or difference.

$$\begin{array}{r}
 \downarrow \\
 1. \quad 2.65 \\
 + 13.30 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \downarrow \\
 2. \quad 14.10 \\
 - 3.05 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3. \quad 744 \\
 + 36.2 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 4. \quad 9 \\
 - 0.6 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 5. \quad 8.97 \\
 + 66 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 6. \quad 100 \\
 - 0.22 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7. \quad 6.8 \\
 + 237.29 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 8. \quad 0.5 \\
 - 0.23 \\
 \hline
 \end{array}$$

9. $15.4 - 8 =$ _____

10. $3 - 2.54 =$ _____

11. $1.34 + 4.1 =$ _____

12. $133.01 - 5.6 =$ _____

13. $448 + 1.75 + 80.3 =$ _____

14. $12.3 + 0.61 + 100 =$ _____

15. On the 3-days of their vacation, the Davis family traveled 417 mi, 45.3 mi, and 366.9 mi. How far did they travel all together?
- _____

16. Etta bought a calculator for \$15. Glenn found the same model for \$9.79. How much more did Etta pay than Glenn did?
- _____

Name _____

Review

4

Multiplying with Decimals

Find 4.3×2.7 .

Multiply as you would with whole numbers.

$$\begin{array}{r} 2 \\ 4.3 \\ \times 2.7 \\ \hline 301 \\ 860 \\ \hline 1161 \end{array}$$

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

$$\begin{array}{rcl} 4.3 & \leftarrow & 1 \text{ decimal place} \\ \times 2.7 & \leftarrow & + 1 \text{ decimal place} \\ \hline 11.61 & \leftarrow & 2 \text{ decimal places} \end{array}$$

Find each product.

1. $\begin{array}{r} 14 \\ \times 8.8 \\ \hline 112 \\ 1120 \end{array}$

2. $\begin{array}{r} 1.6 \\ \times .9 \\ \hline \end{array}$

3. $\begin{array}{r} 0.4 \\ \times 3.2 \\ \hline \end{array}$

4. $\begin{array}{r} 0.05 \\ \times 0.3 \\ \hline \end{array}$

5. $\begin{array}{r} 2.15 \\ \times 8.3 \\ \hline \end{array}$

6. $\begin{array}{r} 3.3 \\ \times 0.12 \\ \hline \end{array}$

7. $\begin{array}{r} 0.51 \\ \times 4.2 \\ \hline \end{array}$

8. $\begin{array}{r} 1.35 \\ \times 13 \\ \hline \end{array}$

9. $23 \times 0.47 =$ _____

10. $0.9 \times 5 =$ _____

11. $168 \times 2.25 =$ _____

12. $0.8 \times 0.11 =$ _____

13. $20 \times 20.2 =$ _____

14. $4.9 \times 0.3 =$ _____

15. A roll of paper towels contained 250 sheets. Each sheet was 8.75 inches long. How long was the roll? _____

16. Tania bought 3 new sweaters. Each sold for \$19.99. How much did she spend? _____

Name _____

Review

6

Dividing with Decimals

Find $36.8 \div 16$.

$\begin{array}{r} \downarrow \\ 16 \overline{) 36.8} \\ \underline{32} \\ 48 \\ \underline{48} \\ 0 \end{array}$	<p>Place the decimal point.</p> <p>← Think: $20 \overline{) 40}$</p> <p>Try 2 in the quotient.</p>	$\begin{array}{r} 2.3 \\ 16 \overline{) 36.8} \\ \underline{-32} \\ 48 \\ \underline{-48} \\ 0 \end{array}$ <p>Multiply 2×16. Subtract. Bring down 8. Multiply 3×16. Subtract.</p>
--	---	--

Find each quotient.

$$\begin{array}{r} 2. \\ 16 \overline{) 13.8} \\ \underline{-16} \\ 18 \\ \underline{-16} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

2. $6 \overline{) 131.4}$

3. $9 \overline{) 141.9}$

4. $5 \overline{) 388.5}$

5. $7 \overline{) 669.2}$

6. $28 \overline{) 263.2}$

7. $41 \overline{) 274.7}$

8. $7 \overline{) 34.23}$

9. $269.12 \div 8 =$ _____

10. $311.56 \div 4 =$ _____

11. $2,229.62 \div 46 =$ _____

12. $1,449.09 \div 81 =$ _____

13. A photographer bought 36 rolls of film for \$136.44.
What was the price of one roll?

14. Four students each ran 100 m in a 400-m relay race.
The team's total time was 49.44 sec. Find the average
time of each runner.

Name _____

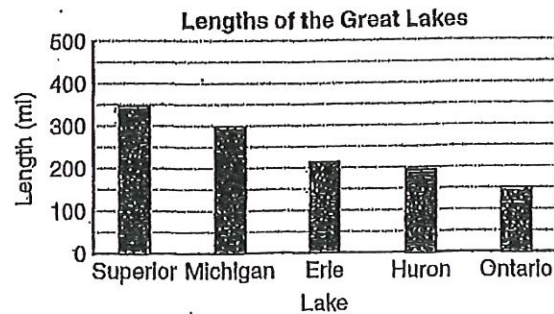
Review 8

Interpreting Data

The **bar graph** shows the lengths in miles of the Great Lakes. Lengths of bars represent lengths of lakes.

Which is the shortest Great Lake?

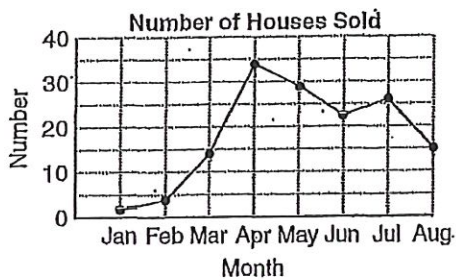
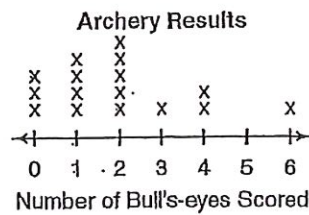
The shortest lake is Lake Ontario.



Use the graphs to answer each question.

1. How many archers scored 4 bull's eyes?

2. What was the most common number of bull's-eyes scored?

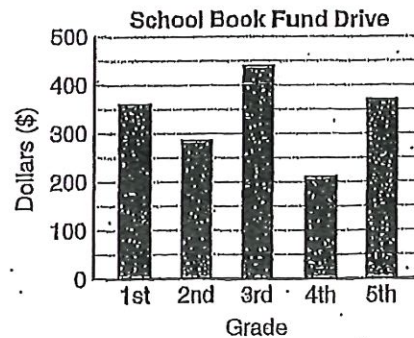


3. In which month were the most houses sold?

4. In which month were about the same number sold as were sold in August?

5. Which grades raised about the same amount for the school book drive?

6. The school's goal was to raise \$1,500. About how much did they raise in all?

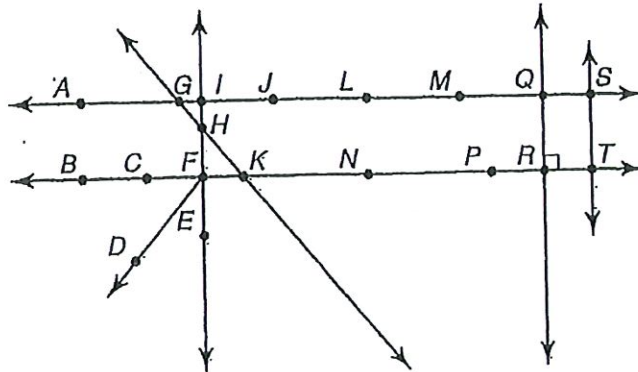


Name _____

R 9-1

Geometric Ideas

- A **line** is a straight path of points that goes on forever in two directions. Examples: \overleftrightarrow{AS} , \overleftrightarrow{GK} .
- A **ray** is a part of a line with one endpoint, extending forever in only one direction. Examples: \overrightarrow{FD} , \overrightarrow{FB} .
- A **line segment** is part of a line with two endpoints. Examples: \overline{CF} , \overline{MQ} .
- A **midpoint** is the point halfway between the endpoints of a line segment. Example: Point L is halfway between points J and M on \overline{JM} .
- **Congruent line segments** are line segments that have the same length. Example: \overline{QR} is congruent to \overline{ST} .
- **Parallel lines** are in the same plane but do not intersect. Example: \overleftrightarrow{AS} is parallel to \overleftrightarrow{BT} .



Use the diagram at the right. Name the following.

1. three line segments

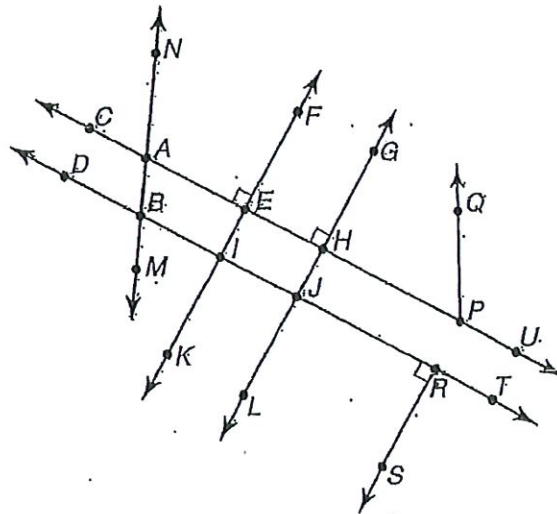
2. two parallel lines

3. two lines that intersect \overleftrightarrow{DT}

4. two congruent line segments

5. two lines perpendicular to \overleftrightarrow{BR}

6. two midpoints of line segments



Name _____

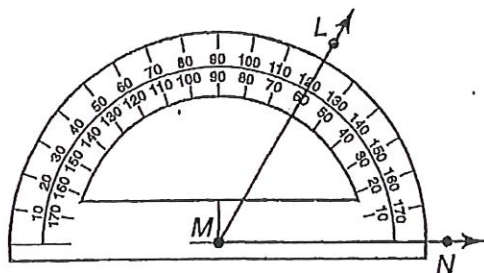
Measuring and Drawing Angles

R 9-2

How to measure an angle:

Step 1 Place the protractor's center on the angle's vertex.

Step 2 Place the 0° mark on one side of the angle.



$LMN = 60^\circ$

Step 3 Use the scale beginning with the 0° mark to read the measurement where the other side of the angle crosses the protractor.

How to draw an angle:

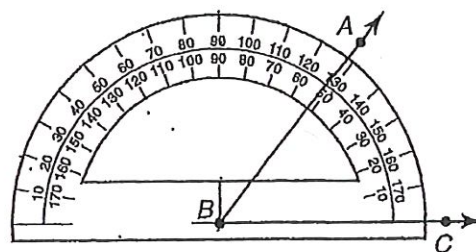
Draw an angle of 52° .

Step 1 Draw a ray.

Step 2 Place the protractor's center on the endpoint. Line up the ray with the 0° mark.

Step 3 Using the scale with the 0° mark, place a point at 52° .

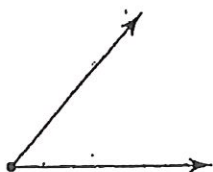
Step 4 Draw the other ray.



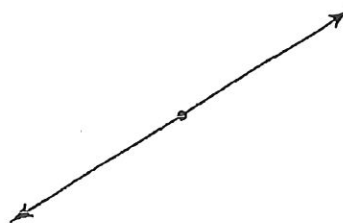
$\angle ABC = 52^\circ$

Classify each angle as acute, right, obtuse, or straight. Then measure the angle.

1.



2.



Draw an angle with each measure.

3. 45°

4. 120°



Name _____

**Review
10**

Adding and Subtracting Fractions

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

Find $\frac{1}{4} - \frac{1}{5}$.

3	6	9	12	15	Multiples of 3
6	12	18	24	30	Multiples of 6

The least common denominator is 6.

Write equivalent fractions. $\frac{2}{3} = \frac{4}{6}$

Add.
$$\begin{array}{r} \frac{2}{3} = \frac{4}{6} \\ + \frac{1}{6} = \frac{1}{6} \\ \hline \frac{5}{6} \end{array}$$

4	8	12	16	20	Multiples of 4
5	10	15	20	25	Multiples of 5

The least common denominator is 20.

Write equivalent fractions. $\frac{1}{4} = \frac{5}{20}$

Subtract.
$$\begin{array}{r} \frac{1}{4} = \frac{5}{20} \\ - \frac{1}{5} = \frac{4}{20} \\ \hline \frac{1}{20} \end{array}$$

Find each sum or difference.

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

4			
3			

2. $\frac{11}{12} - \frac{5}{6} =$ _____

12			
6			

3. $\frac{1}{3} + \frac{4}{9} =$ _____

4. $\frac{3}{7} + \frac{2}{7} =$ _____ 5. $\frac{11}{12} - \frac{5}{12} =$ _____ 6. $\frac{1}{2} + \frac{1}{3} =$ _____ 7. $\frac{1}{3} - \frac{1}{5} =$ _____

8. $\frac{3}{8} - \frac{1}{6} =$ _____ 9. $\frac{3}{5} + \frac{3}{10} =$ _____ 10. $\frac{1}{2} + \frac{2}{5} =$ _____ 11. $\frac{2}{3} - \frac{1}{4} =$ _____

12. Meg practiced the piano for $\frac{5}{12}$ hr. She did homework for $\frac{3}{4}$ hr. How much longer did she do homework than she practiced the piano?
- _____

Name _____

R 4-5

Adding Mixed Numbers

To add mixed numbers, you can add the fractional parts to the whole number parts, and then simplify.

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

The fractions have a common denominator. Add the fractions. Then add the whole numbers.

$$\begin{array}{r} 2\frac{2}{4} \\ + 3\frac{1}{4} \\ \hline 5\frac{3}{4} \end{array}$$

Find $3\frac{2}{3} + 4\frac{1}{9}$.

Write equivalent fractions with the LCD.

$$\begin{array}{r} 3\frac{2}{3} = 3\frac{6}{9} \\ + 4\frac{1}{9} = 4\frac{1}{9} \\ \hline \end{array}$$

Add the whole numbers.
Add the fractions.
Simplify if possible.

$$\begin{array}{r} 3\frac{6}{9} \\ + 4\frac{1}{9} \\ \hline 7\frac{7}{9} \end{array}$$

Find $4 + 3\frac{3}{5}$.

Add the whole numbers; then add the fraction.

$$\begin{array}{r} 4 \\ + 3\frac{3}{5} \\ \hline 7\frac{3}{5} \end{array}$$

Find each sum. Simplify your answer.

1. $2\frac{1}{5} + 2\frac{3}{5} =$ _____

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

3. $5\frac{3}{5} + \frac{3}{10} =$ _____

4. $8\frac{5}{8} + 1\frac{5}{12} =$ _____

5. $6\frac{1}{4} + 11\frac{3}{8} =$ _____

6. $7 + 8\frac{1}{3} =$ _____

7. In 2001, the men's indoor pole vault record was $20\frac{1}{6}$ ft.
The women's record for the indoor pole vault was $15\frac{5}{12}$ ft.
What is the combined height of the two records? _____

8. **Writing in Math** How high is a stack of library books if one book is $1\frac{3}{8}$ in. high, the second book is $1\frac{5}{8}$ in. high, and the third is $2\frac{1}{3}$ in. high? Explain how you solved this problem.

8

Name _____

Review
12

Subtracting Mixed Numbers

Subtract $3\frac{2}{3} - 2\frac{1}{6}$.

Write equivalent fractions.	Subtract the fractions.	Subtract the whole numbers. Simplify.
$\begin{array}{r} 3\frac{2}{3} = 3\frac{4}{6} \\ - 2\frac{1}{6} = 2\frac{1}{6} \\ \hline \end{array}$ <p>The LCD of 3 and 6 is 6.</p>	$\begin{array}{r} 3\frac{2}{3} = 3\frac{4}{6} \\ - 2\frac{1}{6} = 2\frac{1}{6} \\ \hline \quad \frac{3}{6} \end{array}$	$\begin{array}{r} 3\frac{2}{3} = 3\frac{4}{6} \\ - 2\frac{1}{6} = 2\frac{1}{6} \\ \hline 1\frac{3}{6} = 1\frac{1}{2} \end{array}$

Find each difference. Simplify.

1.
$$\begin{array}{r} 3\frac{1}{3} = 3\frac{5}{15} \\ - 2\frac{1}{5} = 2\frac{3}{15} \\ \hline \end{array}$$

2.
$$\begin{array}{r} 2\frac{1}{3} = 2\frac{2}{6} \\ - 1\frac{1}{6} = 1\frac{1}{6} \\ \hline \end{array}$$

3.
$$\begin{array}{r} 3\frac{2}{3} \\ - 2\frac{1}{3} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 6\frac{5}{8} \\ - 2\frac{1}{8} \\ \hline \end{array}$$

5.
$$\begin{array}{r} 3\frac{7}{10} \\ - 1\frac{2}{5} \\ \hline \end{array}$$

6.
$$\begin{array}{r} 7\frac{7}{8} \\ - 2\frac{3}{4} \\ \hline \end{array}$$

7.
$$\begin{array}{r} 3\frac{3}{4} \\ - 2\frac{1}{6} \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5\frac{5}{6} \\ - 1\frac{1}{8} \\ \hline \end{array}$$

9. $2\frac{2}{3} - 1\frac{1}{4} = \underline{\hspace{2cm}}$

10. $4\frac{3}{4} - 4\frac{2}{5} = \underline{\hspace{2cm}}$

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

12. $4\frac{4}{9} - 3\frac{2}{3} = \underline{\hspace{2cm}}$

13. $3\frac{3}{8} - 2\frac{5}{6} = \underline{\hspace{2cm}}$

14. $5\frac{1}{3} - 2\frac{5}{8} = \underline{\hspace{2cm}}$

15. Greg found two rocks for his collection. One weighed $4\frac{1}{4}$ lb and the other weighed $2\frac{7}{8}$ lb. Find the difference in weights.



Name _____

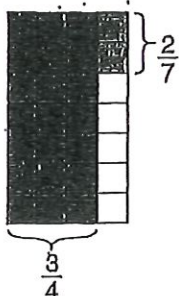
Multiplying Fractions

R 5-2

Find $\frac{3}{4} \times \frac{2}{7}$.

One Way

Draw a picture. Simplify if possible.



6 of the 28 squares have overlapping shading.

So, $\frac{3}{4} \times \frac{2}{7} = \frac{6}{28}$.

Simplify $\frac{6}{28}$ to $\frac{3}{14}$.

Another Way

Multiply the numerators and denominators. Simplify if possible.

$$\begin{aligned} \frac{3}{4} \times \frac{2}{7} \\ = \frac{3 \times 2}{4 \times 7} = \frac{6}{28} \\ = \frac{3}{14} \end{aligned}$$

Simplify First

Find the GCF of any numerator and any denominator.

The GCF of 2 and 4 is 2. Divide 2 and 4 by the GCF.

$$\frac{3}{\cancel{4}_2} \times \frac{\cancel{2}^1}{7} = \frac{3}{14}$$

Write an equation for each picture.



Find each product. Simplify if possible.

3. $\frac{6}{8} \times \frac{1}{3} =$ _____

4. $\frac{5}{6} \times \frac{7}{10} =$ _____

5. $\frac{4}{6} \times \frac{3}{8} =$ _____

6. $\frac{1}{2} \times \frac{4}{9} =$ _____

7. **Number Sense** Can you simplify before multiplying $14 \times \frac{25}{27}$? Explain.

Name _____

Multiplying Mixed Numbers

R 5-4

How to find the product of two mixed numbers:

Find $3\frac{2}{3} \times 4\frac{1}{2}$.

Step 1

Estimate by rounding.

$$\begin{array}{r} 3\frac{2}{3} \times 4\frac{1}{2} \\ \downarrow \quad \downarrow \\ 4 \times 5 = 20 \end{array}$$

Then write each mixed number as an improper fraction.

$$\begin{array}{r} 3\frac{2}{3} \times 4\frac{1}{2} \\ \downarrow \quad \downarrow \\ \frac{11}{3} \times \frac{9}{2} \end{array}$$

Step 2

Look for common factors and simplify.

$$\frac{11}{\cancel{3}^1} \times \frac{\cancel{9}_3}{2} = \frac{11}{1} \times \frac{3}{2}$$

Step 3

Multiply. Write the product as a mixed number.

$$\frac{11}{1} \times \frac{3}{2} = \frac{33}{2} = 16\frac{1}{2}$$

$16\frac{1}{2}$ is close to 20, so the answer is reasonable.

Find each product. Simplify if possible.

1. $2\frac{3}{4} \times 3\frac{1}{2} =$ _____ 2. $2\frac{1}{5} \times 2\frac{2}{3} =$ _____

3. $6 \times 3\frac{1}{4} =$ _____ 4. $1\frac{2}{5} \times 3\frac{1}{4} =$ _____

5. $4\frac{1}{2} \times 16 =$ _____ 6. $1\frac{3}{8} \times 2\frac{1}{2} =$ _____

7. **Number Sense** Is $2 \times 17\frac{5}{8}$ greater than or less than 36? Explain.

11

Name _____

Customary Measurement

R 10-1

Units of Length

foot (ft) 1 ft = 12 in.
yard (yd) 1 yd = 3 ft
 1 yd = 36 in.
mile (mi) 1 mi = 5,280 ft
 1 mi = 1,760 yd

Units of Capacity

cup (c) 1 c = 8 fluid ounces (oz)
pint (pt) 1 pt = 2 c
quart (qt) 1 qt = 2 pt
gallon (gal) 1 gal = 4 qt

How to change from one unit of measurement to another:

To change from larger units to smaller units in the customary system, you have to multiply.

$$120 \text{ yd} = \underline{\hspace{2cm}} \text{ ft}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$120 \times 3 \text{ ft} = 360 \text{ ft}$$

$$120 \text{ yd} = 360 \text{ ft}$$

To change from smaller units to larger ones, you have to divide.

$$256 \text{ oz} = \underline{\hspace{2cm}} \text{ c}$$

$$1 \text{ c} = 8 \text{ oz}$$

$$256 \div 8 = 32$$

$$256 \text{ oz} = 32 \text{ c}$$

Complete.

1. $36 \text{ in.} = \underline{\hspace{2cm}} \text{ ft}$

2. $4 \text{ qt} = \underline{\hspace{2cm}} \text{ c}$

3. $5 \text{ lb} = \underline{\hspace{2cm}} \text{ oz}$

4. $39 \text{ ft} = \underline{\hspace{2cm}} \text{ yd}$

5. $1.5 \text{ mi} = \underline{\hspace{2cm}} \text{ ft}$

6. $3.5 \text{ gal} = \underline{\hspace{2cm}} \text{ qt}$

7. $2 \text{ T} = \underline{\hspace{2cm}} \text{ lb}$

8. $16 \text{ pt} = \underline{\hspace{2cm}} \text{ qt}$

9. $64 \text{ oz} = \underline{\hspace{2cm}} \text{ lb}$

10. $3 \text{ yd} = \underline{\hspace{2cm}} \text{ in.}$

11. $4 \text{ gal} = \underline{\hspace{2cm}} \text{ pt}$

12. $55 \text{ yd} = \underline{\hspace{2cm}} \text{ ft}$

13. $6.5 \text{ lb} = \underline{\hspace{2cm}} \text{ oz}$

14. $20 \text{ pt} = \underline{\hspace{2cm}} \text{ gal}$

15. $4.5 \text{ qt} = \underline{\hspace{2cm}} \text{ c}$

16. $205 \text{ yd} = \underline{\hspace{2cm}} \text{ ft}$

17. **Reasoning** A vendor at a festival sells soup for \$1.25 per cup or \$3.75 per quart. Which is the better buy?
- _____

Name _____

Review 16

Perimeter

Perimeter is the distance around a shape.

You can add the lengths of all the sides or you can multiply the sum of the length and the width by 2 to find the perimeter of a rectangle.

$$p = 25 \text{ in.} + 9 \text{ in.} + 25 \text{ in.} + 9 \text{ in.} = 68 \text{ in.}$$

$$\text{or } p = 2 \times (25 \text{ in.} + 9 \text{ in.}) = 68 \text{ in.}$$

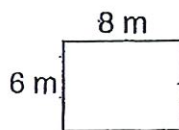
If only one side of a figure is given, then all sides have the same length.



$$p = 5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} = 20 \text{ cm}$$

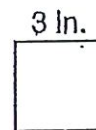
$$\text{or } p = 4 \times 5 \text{ cm} = 20 \text{ cm}$$

1. Find the perimeter of the rectangle.



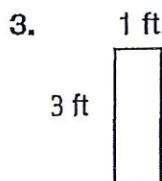
$p = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ m}$

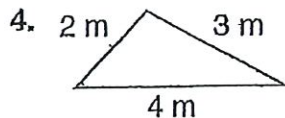
2. Find the perimeter of the square.

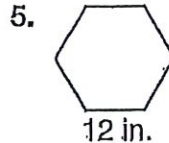


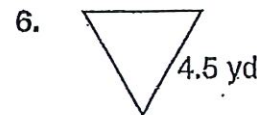
$p = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ in.}$

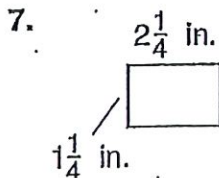
Find the perimeter of each figure.

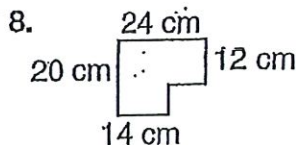


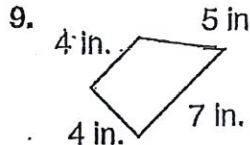


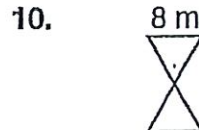












11. A flower garden is in the shape of an equilateral triangle. Each side measures $15\frac{3}{8}$ ft. What is the garden's perimeter? _____

Name _____

Area of Squares and Rectangles

R 10-8

You can use formulas to find the area of a square or rectangle.

Find the area of a square that is 7.2 m on each side.

Use the formula $A = s^2$.

$$A = (7.2)^2$$

$$A = 51.84$$

The area is 51.84 m².

Find the area of a rectangle with a length (l) of 4 cm and a width (w) of 12 cm.

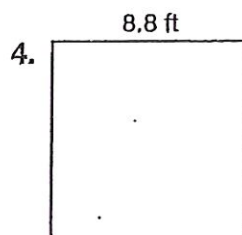
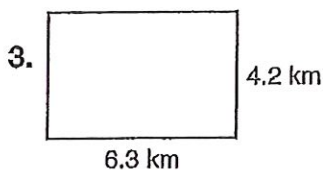
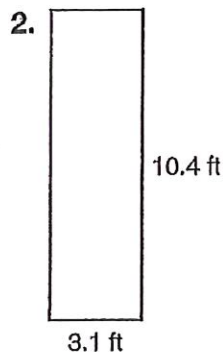
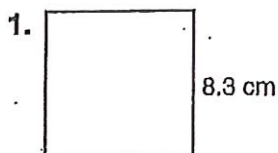
Use the formula $A = l \times w$.

$$A = 4 \times 12$$

$$A = 48$$

The area is 48 cm².

Find the area of each figure.



5. **Reasoning** What is the length of a rectangle that has an area of 120 ft² and a width of 8 ft? _____

6. **Number Sense** What is the area of a square that is 12.4 cm on each side? _____

Name _____

**Review
18**

Ratio and Proportion

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



2 balloons to 3 sticks

You can write ratios as:

words 2 to 3

with a colon 2:3

as a fraction $\frac{2}{3}$

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



$$\frac{1 \text{ balloon}}{2 \text{ sticks}} = \frac{2 \text{ balloons}}{4 \text{ sticks}}$$

$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$

$\frac{1}{2} = \frac{2}{4}$ is a proportion.

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

1. Write the ratio of squares to circles.



2. The Computer Club has 20 girls and 15 boys. Write the ratio of girls to boys in the club.

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

3. $\frac{3}{4}$ $\frac{9}{12}$ _____ 4. $\frac{1}{3}$ $\frac{2}{9}$ _____ 5. $\frac{3}{5}$ $\frac{6}{10}$ _____ 6. $\frac{4}{6}$ $\frac{8}{18}$ _____

Complete each table so that all ratios are equal.

7.

3	6	9	12
5			

8.

2			
7	21	42	63

9.

4		20	
5	10		50

10. The ratio of the width to the length of a painting is 3 to 7. If the painting is 42 in. long, how wide is it? _____

11. The ratio of the number of moons the planet Neptune has to the number that Saturn has is 4 to 9. Saturn has 18 moons. How many moons does Neptune have? _____

Name _____

Fractions, Decimals, and Percents

R 7-2

Fractions, decimals, and percents all name parts of a whole. The grid to the right has 72 out of 100 squares shaded.



72 out of 100 are shaded. As a fraction, that is $\frac{72}{100}$.
As a decimal, that is 0.72. As a percent, that is 72%.

Write 40% as a fraction and decimal.

$$40\% = \frac{40}{100} = 0.40$$

The decimal point moves two places to the left.

Write 0.47 as a fraction and percent.

$$0.47 = \frac{47}{100} = 47\%$$

Write 0.3% as a fraction and decimal.

$$0.3\% = \frac{0.3}{100} = 0.003$$

The decimal point moves two places to the left. Fill in any spaces with zeros.

Write $\frac{3}{4}$ as a decimal and percent.

You can use a proportion:

$$\frac{3}{4} = \frac{n}{100}$$

$$\frac{4n}{4} = \frac{300}{4}$$

$$n = 75$$

$$\text{So, } \frac{3}{4} = 0.75 = 75\%.$$

Write each in two other ways.

1. $\frac{2}{10}$ _____; _____

2. $\frac{23}{100}$ _____; _____

3. $\frac{7}{10}$ _____; _____

4. 97% _____; _____

5. 16% _____; _____

6. 52% _____; _____

7. 0.04 _____; _____

8. 0.35 _____; _____

9. **Number Sense** Sheila got 87% of the problem correct.
Patrick got $\frac{91}{100}$ correct. Who scored higher? _____

18

Answers and Options for Further Review

REVIEW 1

- | | | | |
|---------------|--------|-----------|--------|
| 1. 201 | 2. 615 | 3. 1,109 | 4. 179 |
| 5. 198 | 6. 980 | 7. 564 | 8. 90 |
| 9. 31 | | 10. 109 | |
| 11. 279 | | 12. 221 | |
| 13. 588 | | 14. 1,301 | |
| 15. 1,296 | | 16. 2,109 | |
| 17. 491 cards | | | |

REVIEW 2

- | | |
|--------------|------------|
| 1. 15.95 | 2. 11.05 |
| 3. 780.2 | 4. 8.4 |
| 5. 74.97 | 6. 99.78 |
| 7. 244.09 | 8. 0.27 |
| 9. 7.4 | 10. 0.46 |
| 11. 5.44 | 12. 127.41 |
| 13. 530.05 | 14. 112.91 |
| 15. 829.2 ml | 16. \$5.21 |

REVIEW 3

- | | |
|--------|----------|
| 1. 646 | 2. 2,408 |
| 3. 328 | 4. 1,196 |

- | | |
|---------------|--------------|
| 5. 9,072 | 6. 7,770 |
| 7. 39,195 | 8. 74,304 |
| 9. 5,940 | 10. 8,800 |
| 11. 20,979 | 12. 49,680 |
| 13. 440 | 14. 640 |
| 15. 3,620 | 16. 4,896 lb |
| 17. 504 miles | |

REVIEW 4

- | | |
|-----------------|-------------|
| 1. 123.2 | 2. 14.4 |
| 3. 1.28 | 4. 0.015 |
| 5. 17.845 | 6. 0.396 |
| 7. 2.142 | 8. 17.55 |
| 9. 10.81 | 10. 4.5 |
| 11. 378 | 12. 0.088 |
| 13. 404 | 14. 1.47 |
| 15. 2,187.5 in. | 16. \$59.97 |

REVIEW 5

- | | |
|------------------------|---------|
| 1. 19 | 2. 66 |
| 3. 83 | 4. 226 |
| 5. 319 | 6. 35 |
| 7. 47 | 8. 35 |
| 9. 58 | 10. 83 |
| 11. 40 | 12. 145 |
| 13. 102 | 14. 365 |
| 15. 19 points per game | |

REVIEW 6

1. 2.3
3. 15.7
5. 95.6
7. 6.7
9. 33.64
11. 48.47
13. \$3.79 per roll
2. 21.9
4. 77.7
6. 9.4
8. 4.89
10. 77.89
12. 17.89
14. 12.36 sec

REVIEW 9

1. intersecting and perpendicular
2. parallel
4. straight
6. acute
8. obtuse
10. straight
3. intersecting
5. obtuse
7. right
9. right
11. acute

REVIEW 7

1. division; 33 teams
2. addition; 450.25 lb
3. subtraction; \$48.05
4. division; \$0.60 per minute
5. multiplication; \$4.74

REVIEW 10

1. $\frac{11}{12}$
3. $\frac{7}{9}$
5. $\frac{1}{2}$
7. $\frac{2}{15}$
9. $\frac{9}{10}$
11. $\frac{5}{12}$
2. $\frac{1}{12}$
4. $\frac{5}{7}$
6. $\frac{5}{6}$
8. $\frac{5}{24}$
10. $\frac{9}{10}$
12. $\frac{1}{3}$ hour

REVIEW 8

1. 2 archers
2. 2 bull's eyes
3. April
4. March
5. 1st and 5th
6. About \$1,600-\$1,700

REVIEW 15

1. 108
2. 5
3. 300
4. $\frac{1}{2}$
5. 100
6. 40,000
7. 5,000
8. 2,640
9. 104
10. 4,300
11. 25,000
12. $1\frac{2}{3}$
13. 6.7
14. Yes, by 1.2 oz

REVIEW 16

1. 28
2. 12
3. 8 ft
4. 9 m
5. 72 in.
6. 13.5 yd
7. 7 in.
8. 88 cm
9. 20 in.
10. 48 m
11. $46\frac{1}{8}$ ft

REVIEW 17

1. 63 in²
2. 5 ft²
3. 72 m²
4. 32 in²
5. 46.5 cm²
6. $6\frac{1}{4}$ ft²
7. 40 in²
8. 180 mm²
9. 4.5 yd²
10. 25 ft²
11. 75,000 yd²

REVIEW 18

1. $\frac{4}{3}$
2. $\frac{4}{3}$
3. yes
4. no
5. yes
6. no
7.

3	6	9	12
5	10	15	20
8.

2	6	12	18
7	21	42	63
9.

4	8	20	40
5	10	25	50
10. 18 in.
11. 8 moons

REVIEW 19

1. 6
2. 15
3. $\frac{1}{2}$
4. $\frac{3}{4}$
5. $\frac{1}{10}$
6. $\frac{3}{5}$
7. 0.45
8. 0.16
9. 0.78
10. 0.04
11. 8
12. 4
13. 3
14. 6.3
15. 3.5
16. 116
17. 40 students
18. 38 problems

REVIEW 20

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

Reteaching

Name _____

Area of Squares and Rectangles

R 10-8

You can use formulas to find the area of a square or rectangle.

Find the area of a square that is 7.2 m on each side.

Use the formula $A = s^2$.

$$A = (7.2)^2$$

$$A = 51.84$$

The area is 51.84 m².

Find the area of a rectangle with a length l of 4 cm and a width w of 12 cm.

Use the formula $A = l \times w$.

$$A = 4 \times 12$$

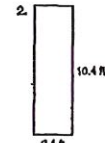
$$A = 48$$

The area is 48 cm².

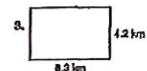
Find the area of each figure.



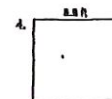
$$68.89 \text{ cm}^2$$



$$32.24 \text{ ft}^2$$



$$26.46 \text{ km}^2$$



$$77.44 \text{ ft}^2$$

5. Reasoning What is the length of a rectangle that has an area of 120 ft² and a width of 8 ft?

$$15 \text{ ft}$$

6. Number Sense What is the area of a square that is 12.4 cm on each side?

$$153.76 \text{ cm}^2$$

Use with Lesson 10-4. 123

Reteaching

Name _____

Customary Measurement

R 10-1

Units of Length

foot (ft) 1 ft = 12 in.

yard (yd) 1 yd = 3 ft

1 yd = 36 in.

mile (mi) 1 mi = 5,280 ft

1 mi = 1,760 yd

Units of Capacity

cup (c) 1 c = 8 fluid ounces (oz)

pint (pt) 1 pt = 2 c

quart (qt) 1 qt = 2 pt

gallon (gal) 1 gal = 4 qt

How to change from one unit of measurement to another:

To change from larger units to smaller units in the customary system, you have to multiply.

$$120 \text{ yd} = \underline{\hspace{1cm}} \text{ ft}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$120 \times 3 \text{ ft} = 360 \text{ ft}$$

$$120 \text{ yd} = 360 \text{ ft}$$

To change from smaller units to larger ones, you have to divide.

$$256 \text{ oz} = \underline{\hspace{1cm}} \text{ c}$$

$$1 \text{ c} = 8 \text{ oz}$$

$$256 \div 8 = 32$$

$$256 \text{ oz} = 32 \text{ c}$$

Complete.

1. 36 in. = 3 ft

2. 4 qt = 16 c

3. 5 lb = 80 oz

4. 39 ft = 13 yd

5. 1.5 ml = 7,920 ft

6. 3.5 gal = 14 qt

7. 2 T = 4,000 lb

8. 16 pt = 8 qt

9. 64 oz = 4 lb

10. 3 yd = 108 in.

11. 4 gal = 32 pt

12. 55 yd = 165 ft

13. 5.5 lb = 104 oz

14. 20 pt = 2.5 gal

15. 4.5 qt = 18 c

16. 205 yd = 615 ft

17. Reasoning A vendor at a festival sells soup for \$1.25 per cup or \$3.75 per quart. Which is the better buy?

\$3.75 per quart is the better buy.

116 Use with Lesson 10-1.

Reteaching

Name _____

Metric Measurement

R 40-2

Changing from one metric unit to another:

To change from a larger unit to a smaller unit, multiply by a power of ten.

$$3.8 \text{ L} = \underline{\hspace{1cm}} \text{ mL}$$

A liter is a larger unit than a milliliter. To change from liters to milliliters, multiply.

$$1 \text{ L} = 1,000 \text{ mL}$$

$$3.8 \times 1,000 = 3,800$$

$$3.8 \text{ L} = 3,800 \text{ mL}$$

To change from a smaller unit to a larger unit, divide by a power of ten.

$$100 \text{ m} = \underline{\hspace{1cm}} \text{ km}$$

The meter is a smaller unit than the kilometer. To change from meters to kilometers, divide.

$$1,000 \text{ m} = 1 \text{ km}$$

$$100 \div 1,000 = 0.1$$

$$100 \text{ m} = 0.1 \text{ km}$$

Name the most appropriate metric unit for each measurement.

1. mass of a cow

kg

2. length of a carrot

cm

3. capacity of a thimble

mL

Complete.

4. 45 g = 45,000 mg

5. 3450 mL = 3.45 L

6. 4.5 m = 4,500 mm

7. 1.68 L = 1,680 mL

8. 28 cm = 280 mm

9. 7,058 g = 7.058 kg

10. 600 cm = 6 m

11. 5,000 mg = 5 g

12. 5.1 km = 5,100 m

13. 1.780 L = 1,780 mL

14. 0.780 L = 780 mL

15. 4,300 m = 4.3 km

16. 9,000 cm = 90 m

17. 8,000 mg = 8 g

18. Reasoning It is recommended that people have 1 g of calcium each day. How many milligrams of calcium is that?

$$\underline{1,000 \text{ mg}}$$

Use with Lesson 10-2. 117

Reteaching

Name _____

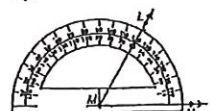
Measuring and Drawing Angles

R 9-2

How to measure an angle:

Step 1 Place the protractor's center on the angle's vertex.

Step 2 Place the 0° mark on one side of the angle.



$\angle M = 60^\circ$

How to draw an angle:

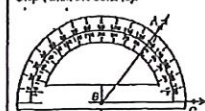
Draw an angle of 52°.

Step 1 Draw a ray.

Step 2 Place the protractor's center on the endpoint. Use up the ray with the 0° mark.

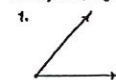
Step 3 Using the scale with the 0° mark, place a point at 52°.

Step 4 Draw the other ray.

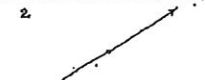


$\angle ABO = 52^\circ$

Classify each angle as acute, right, obtuse, or straight. Then measure the angle.



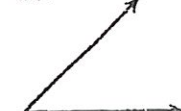
Acute; 50°



Straight; 180°

Draw an angle with each measure.

3. 45°



4. 120°



102 Use with Lesson 9-2.

23

Reteaching

Name _____

Area of Squares and Rectangles

R 10-8

You can use formulas to find the area of a square or rectangle.

Find the area of a square that is 7.2 m on each side.

Use the formula $A = s^2$.

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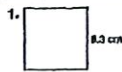
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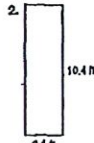
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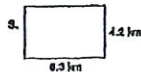
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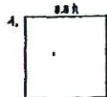
$$68.89 \text{ cm}^2$$



$$32.24 \text{ ft}^2$$



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$$15 \text{ ft}$$

6. Number Sense What is the area of a square that is 12.4 cm on each side?

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Use with Lesson 10-4. 123

Reteaching

Name _____

Customary Measurement

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$$120 \text{ yd} = 360 \text{ ft}$$

To change from smaller units to larger ones, you have to divide.

$$256 \text{ oz} = \underline{\hspace{1cm}} \text{ c}$$

$$1 \text{ c} = 8 \text{ oz}$$

$$256 \div 8 = 32$$

$$256 \text{ oz} = 32 \text{ c}$$

Complete.

$$1. 36 \text{ in.} = \underline{3} \text{ ft}$$

$$2. 4 \text{ qt} = \underline{16} \text{ c}$$

$$3. 6 \text{ lb} = \underline{80} \text{ oz}$$

$$4. 39 \text{ ft} = \underline{13} \text{ yd}$$

$$5. 1.5 \text{ ml} = \underline{7,920} \text{ fl}$$

$$6. 3.5 \text{ gal} = \underline{14} \text{ qt}$$

$$7. 2 \text{ T} = \underline{4,000} \text{ lb}$$

$$8. 16 \text{ pt} = \underline{8} \text{ qt}$$

$$9. 84 \text{ oz} = \underline{4} \text{ lb}$$

$$10. 3 \text{ yd} = \underline{108} \text{ in.}$$

$$11. 4 \text{ gal} = \underline{32} \text{ pt}$$

$$12. 55 \text{ yd} = \underline{165} \text{ ft}$$

$$13. 6.5 \text{ lb} = \underline{104} \text{ oz}$$

$$14. 20 \text{ pt} = \underline{2.5} \text{ gal}$$

$$15. 4.5 \text{ qt} = \underline{18} \text{ c}$$

$$16. 205 \text{ yd} = \underline{615} \text{ ft}$$

17. Reasoning A vendor at a festival sells soup for \$1.25 per cup or \$3.75 per quart. Which is the better buy?

\$3.75 per quart is the better buy.

116 Use with Lesson 10-1.

Reteaching

Name _____

Metric Measurement

R 10-2

Changing from one metric unit to another:

To change from a larger unit to a smaller unit, multiply by a power of ten.

$$3.8 \text{ L} = \underline{\hspace{1cm}} \text{ mL}$$

A liter is a larger unit than a milliliter. To change from liters to milliliters, multiply.

$$1 \text{ L} = 1,000 \text{ mL}$$

$$3.8 \times 1,000 = 3,800$$

$$3.8 \text{ L} = 3,800 \text{ mL}$$

To change from a smaller unit to a larger unit, divide by a power of ten.

$$100 \text{ m} = \underline{\hspace{1cm}} \text{ km}$$

The meter is a smaller unit than the kilometer. To change from meters to kilometers, divide.

$$1,000 \text{ m} = 1 \text{ km}$$

$$100 \div 1,000 = 0.1$$

$$100 \text{ m} = 0.1 \text{ km}$$

Name the most appropriate metric unit for each measurement.

1. mass of a cow **kg** 2. length of a carrot **cm** 3. capacity of a thimble **mL**

Complete.

$$4. 45 \text{ g} = \underline{45,000} \text{ mg}$$

$$5. 3450 \text{ mL} = \underline{3.45} \text{ L}$$

$$6. 4.5 \text{ m} = \underline{4,500} \text{ mm}$$

$$7. 1.68 \text{ L} = \underline{1,680} \text{ mL}$$

$$8. 28 \text{ cm} = \underline{280} \text{ mm}$$

$$9. 7,658 \text{ g} = \underline{7.658} \text{ kg}$$

$$10. 800 \text{ cm} = \underline{6} \text{ m}$$

$$11. 5,000 \text{ mg} = \underline{5} \text{ g}$$

$$12. 5.1 \text{ km} = \underline{5,100} \text{ m}$$

$$13. 1,780 \text{ L} = \underline{1.780} \text{ mL}$$

$$14. 0.780 \text{ L} = \underline{780} \text{ mL}$$

$$15. 4,300 \text{ m} = \underline{4.3} \text{ km}$$

$$16. 9,000 \text{ cm} = \underline{90} \text{ m}$$

$$17. 8,000 \text{ mg} = \underline{8} \text{ g}$$

18. Reasoning It is recommended that people have 1 g of calcium each day. How many milligrams of calcium is that?

$$\underline{1,000 \text{ mg}}$$

Use with Lesson 10-2. 117

Reteaching

Name _____

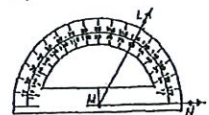
Measuring and Drawing Angles

R 9-2

How to measure an angle:

Step 1 Place the protractor's center on the angle's vertex.

Step 2 Place the 0° mark on one side of the angle.



$$\angle M N P = 60^\circ$$

Step 3 Use the scale beginning with the 0° mark to read the measurement where the other side of the angle crosses the protractor.

How to draw an angle:

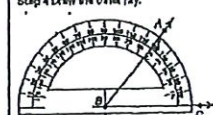
Draw an angle of 52°.

Step 1 Draw a ray.

Step 2 Place the protractor's center on the endpoint. Line up the ray with the 0° mark.

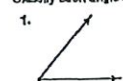
Step 3 Using the scale with the 0° mark, place a point at 52°.

Step 4 Draw the other ray.



$$\angle A B C = 52^\circ$$

Classify each angle as acute, right, obtuse, or straight. Then measure the angle.



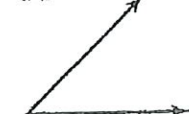
$$\text{Acute; } 50^\circ$$



$$\text{Straight; } 180^\circ$$

Draw an angle with each measure.

$$3. 45^\circ$$



$$4. 120^\circ$$



102 Use with Lesson 9-2.

Reteaching

Name _____

Multiplying Fractions

R 8-2

Find $\frac{3}{4} \times \frac{2}{7}$.

One Way

Draw a picture. Simplify if possible.



8 of the 28 squares have overlapping shading.

So, $\frac{3}{4} \times \frac{2}{7} = \frac{8}{28}$

Simplify $\frac{8}{28}$ to $\frac{2}{7}$.

Another Way

Multiply the numerators and denominators. Simplify if possible.

$$\begin{aligned} \frac{3}{4} \times \frac{2}{7} &= \frac{3 \times 2}{4 \times 7} = \frac{6}{28} \\ &= \frac{3}{14} \end{aligned}$$

Simplify First

Find the GCF of any numerator and any denominator.

The GCF of 2 and 4 is 2. Divide 2 and 4 by the GCF.

$$\frac{3}{4} \times \frac{2}{7} = \frac{3}{2} \times \frac{1}{7} = \frac{3}{14}$$

Write an equation for each picture.



$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$



$$\frac{1}{6} \times \frac{1}{3} = \frac{1}{18}$$

Find each product. Simplify if possible.

3. $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

4. $\frac{2}{5} \times \frac{7}{10} = \frac{14}{50} = \frac{7}{25}$

5. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$

6. $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

7. Number Sense Can you simplify before multiplying $14 \times \frac{2}{3}$? Explain.

No, because there is no common factor to divide by