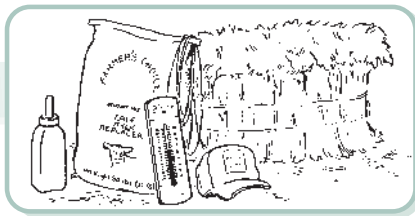


Lesson 14



The Relationship of Volume to Capacity in the Metric System

The **capacity** of an object is the amount the object will hold.

The teaspoon has a capacity of 5 mL.

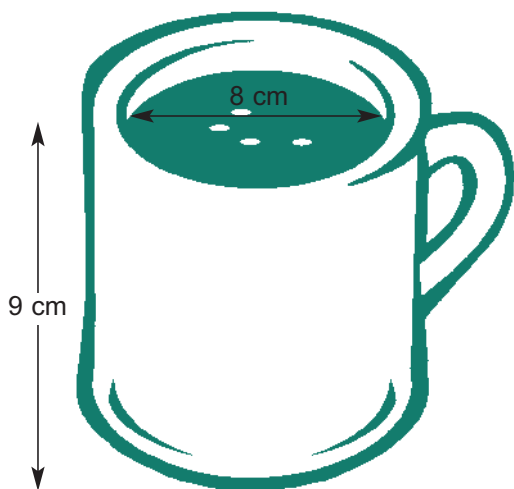
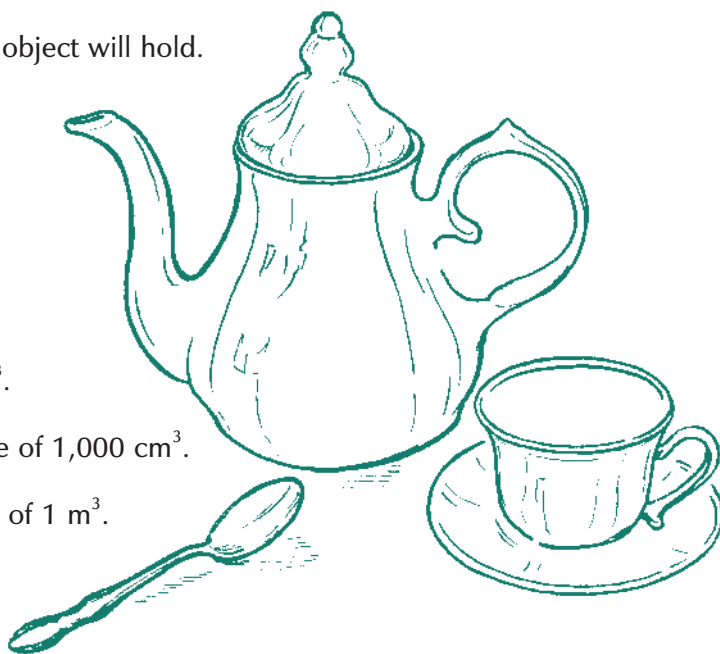
The teacup has a capacity of 250 mL.

The teapot has a capacity of 1 L.

1 mL fills a space with a volume of 1 cm^3 .

1,000 mL (1 L) fills a space with a volume of $1,000 \text{ cm}^3$.

1,000 L (1 kL) fills a space with a volume of 1 m^3 .



What is the capacity of the coffee mug, rounded to the nearest mL?

The shape of the mug is cylindrical. Use the formula to find the volume of the cylinder:

$$V = Bh$$

$$V = (\pi r^2)h$$

$$V = 3.14 (4 \times 4)9$$

$$V = 3.14 \times 16 \times 9$$

$$V = 452.16 \text{ cm}^3$$

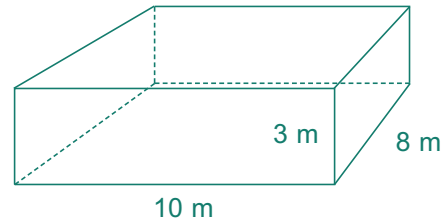
The capacity of the coffee mug, to the nearest mL, is 452 mL.

Write which measure is more reasonable.

1. A soup ladle holds 150 L or 150 mL. _____
2. A garbage can holds 25 L or 25 kL. _____

Follow the directions.

3. Find the volume of the container. _____
4. Give the capacity of the box ...
 - a. in kiloliters. _____
 - b. in liters. _____



We Remember

Use proportions to calculate the actual height of the Washington Monument in Washington, D.C. Measure to the nearest tenth of a centimeter.

5. _____

Scale:
1 cm = 75 m



Rewrite with prime factors, cancel the GCF, and write the fractions in simplest form.

6. $\frac{24}{264}$

7. $\frac{176}{192}$

Read Matthew 26:15. Complete the sentences. Round to the nearest whole month.

Use 1 piece of silver \approx 4 day's wages and 25 working days per month.

8. Judas betrayed Jesus for _____ pieces of silver.
9. To the nearest month, this was _____ month's wages.



Find the percent of increase to the nearest percent.

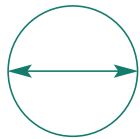
10. A change from 180 to 325 is an increase of _____.
11. A change from 455 to 375 is a decrease of _____.

Lesson 14

Mastery Drill

12. An obtuse angle measures between _____° and _____°.
13. The number that occurs most often in a list is the _____.
14. Any number with an exponent of _____ equals the number itself.
15. In the formula $V = Bh$, the capital B stands for the _____ of the _____.
16. a. 1 kilometer \approx _____ mile b. 1 inch = _____ centimeter
17. a. The decimal we use for π is _____ . b. The *perpendicular* symbol is _____.
18. a. *Milli* means _____ . b. *Hecto* means _____ . c. *Centi* means _____ .

Use the circumference formula to find the diameter of the circle. Use 3.14 for pi.



$C = 47.1$ inches

19. The diameter is _____.

Convert. Round to the nearest tenth.

20. 5 m \approx _____ yd
21. 10 lb \approx _____ kg



Convert to decimals rounded to the nearest thousandth.

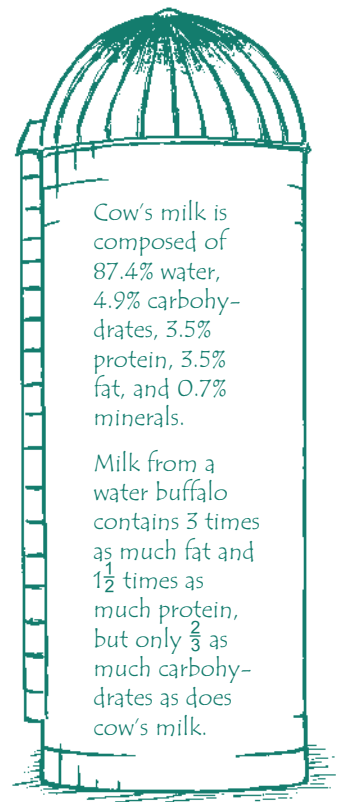
22. $\frac{13}{16} \approx$ _____
23. $3\frac{5}{8} \approx$ _____

Solve.

24. \$5,000 loan at $9\frac{3}{4}\%$ interest for 5 years.
 - a. Amount of interest owed: _____
 - b. Total amount to repay: _____

Write the products. Use fractions for those with negative exponents.

25. a. $4^0 =$ _____ b. $2^1 =$ _____ c. $2^{-4} =$ _____ d. $12^{-2} =$ _____



+ **×** Skill Builders

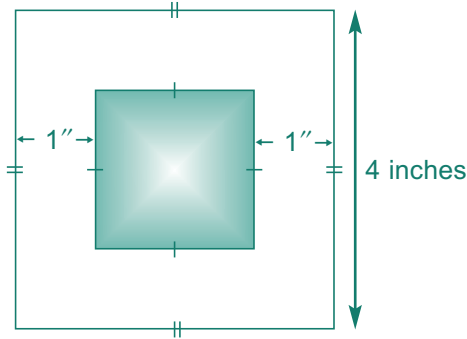
Write the repeating decimal with a bar.

26. a. $4 \overline{) 13 \text{ ft } 9 \text{ in}}$

b. $1.1 \overline{) 2}$

c. $6 \times \frac{4}{5} \times 2\frac{1}{2} = \underline{\hspace{2cm}}$

Find the area of the shaded part.



27. _____

Simplify, solve, and check.

28. a. $\frac{24}{6} + 6 = 3x + 2x - 5$

b.



Find the mean, median, mode, and range. Round to the nearest whole.

29. 55, 92, 103, 22, 73, 27, 114, 92, 33, 88, 86

a. mean _____

b. median _____

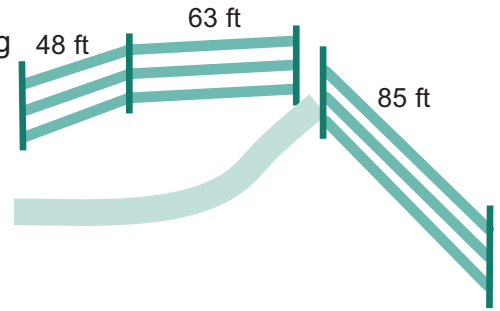
c. mode _____

d. range _____

Lesson 14



30. One Saturday, Raymond and the children started painting one side of the 3-board fence around the yard. The fence was 48 feet long from the house to the corner, 63 feet from the corner to the sidewalk, and 85 feet from the other side of the sidewalk to the end of the barn. How many feet of fence board did they have to paint?



Copy and solve.

31. $6.05 + 58 + 14.2 + 79 =$ _____
 32. $240 - 16.42 =$ _____

Solve.

33. What is $\frac{8}{9}$ of 81? _____
 34. 9 is $\frac{3}{16}$ of what number? _____
 35. 80 is what fraction of 200? _____

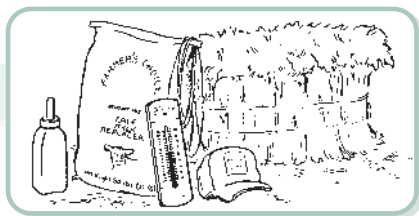
List the prime factors with exponents. List each factor with the largest exponent. Multiply to find the LCM.

36. a. $8 =$ _____
 b. $16 =$ _____
 c. $20 =$ _____
 d. _____ e. LCM = _____

Complete the table.

37.	Volume	20 cm ³	3 m ³	_____ m ³	_____ cm ³	_____ cm ³
	Capacity	_____ mL	_____ L	5 kL	1.5 L	500 mL

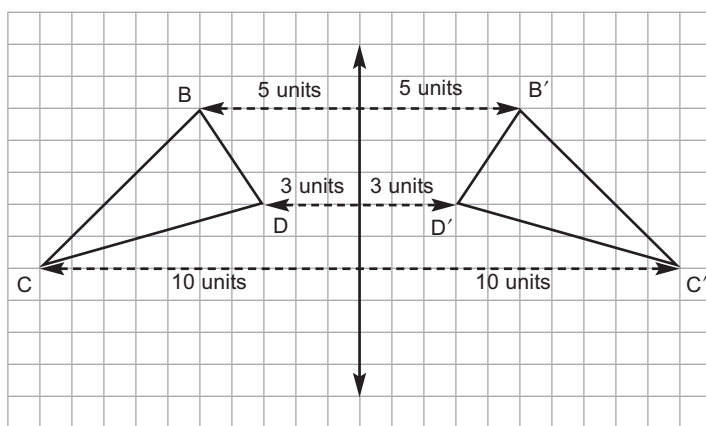
Lesson 15



Constructing a Congruent Figure Using Reflection

You can draw a reflection image of $\triangle BCD$ using the line of reflection given.

It is 5 units from point B to the line of reflection. Count 5 units on the opposite side of the line of reflection and mark this point B' . It is 10 units from point C to the line of reflection. Count 10 units on the opposite side of the line of reflection and mark this point C' . It is 3 units from point D to the line of reflection. Count 3 units on the opposite side of the reflection line and mark it point D' . Draw the congruent reflected triangle by joining the points with a straightedge.



Construct the reflection image of each figure using the line of reflection given. Label the corresponding points with '.

1.



We Remember

Find the capacity of each container to the nearest mL or L.



603 cm³

2. a. _____ mL



9,000 cm³

b. _____ L



200 cm³

c. _____ mL



5,000 cm³

d. _____ L



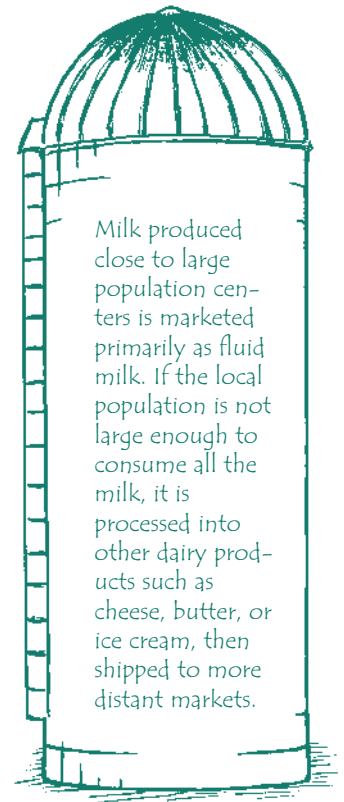
3. Raymond bought a 5-gallon pail of barn and fence paint for \$59.96. What was the price per gallon? Round the unit price to the nearest cent. _____



4. Raymond and the children do as much of their Sunday chores on Saturday as they possibly can. Rachel began tending the chickens at 3:35 p.m. She collected the eggs and then filled all the waterers and gave the chickens extra feed. She finished at 4:10 p.m. How many minutes did it take for her to tend the chickens? _____



5. A gasoline truck has a cylindrical tank 9 meters long. The diameter of the tank is 2 meters. How many liters of gasoline can the tank hold? _____



Lesson 15

+ **x** Skill Builders

Write the remainder with R.

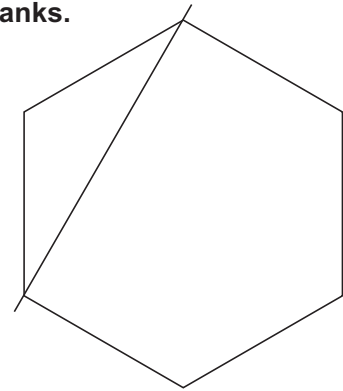
24. a. $16 = \frac{n}{4} + 21$

b. $429 \overline{) 29,651}$

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

With your ruler, draw all the diagonals for the polygon. Fill in the blanks.

- 25. Number of diagonals _____
- 26. Name of this polygon _____
- 27. Number of sides _____
- 28. Number of angles _____



Complete the table of values for the equation and list the ordered pairs. Then graph the equation.

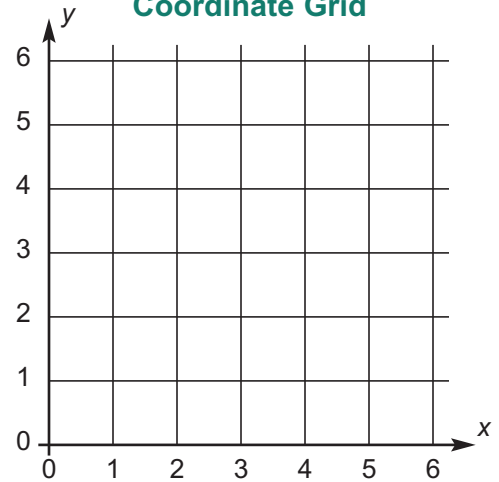
29. $3x + y = 6$

Table of Values

x	y
0	
1	
2	

Coordinates

Coordinate Grid



Use proportions to calculate the actual length of the striped cucumber beetle.

30. _____



Change to 12-hour time.

31. a. 14:15 _____ b. 00:00 _____ c. 09:10 _____

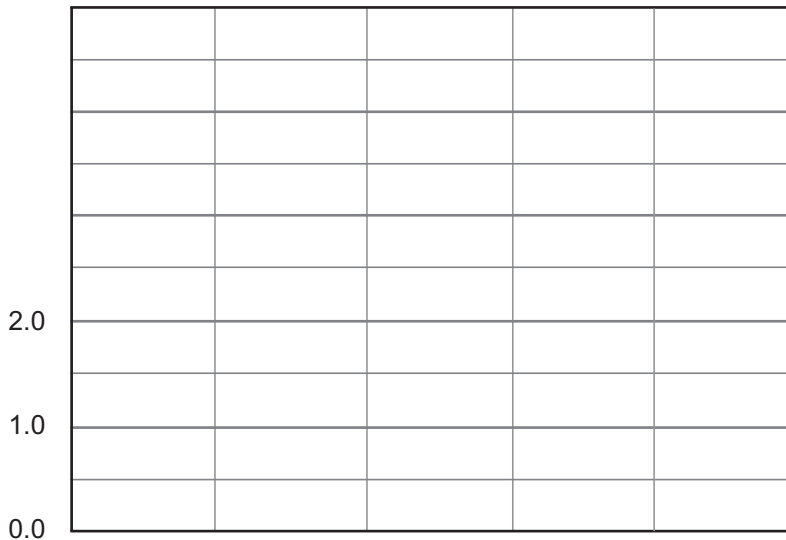
Change to 24-hour time.

32. a. 10:00 p.m. _____ b. 7:00 a.m. _____ c. 12:45 a.m. _____

Using the information, draw a double line graph. Label each line to show whether it represents actual or normal rainfall. Then answer the questions below.

The table shows actual rainfall and normal rainfall for six months.

△ 33.



Month	Actual	Normal
March	2.5''	3.5''
April	4.5''	4.5''
May	3.5''	4.0''
June	3.5''	3.5''
July	3.5''	3.0''
August	1.5''	3.0''

34. During which two months was the rainfall much lower than normal?

35. What was the range of the actual rainfall per month? _____