UNIT 6
WORKSHEET
PACKET

Grade 6 On

Measurement and Geometry

NAME:_____

Name _____ Class _____ Date _____

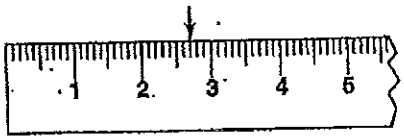
Reteaching 9-1

Metric Units of Length, Mass, and Capacity

The standard unit of length in the metric system is the *meter*.

millimeter (mm)	= 0.001 meter
centimeter (cm)	= 0.01 meter
meter (m)	= 1 meter
kilometer (km)	= 1,000 meters

A length can be named using different metric units. The point marked on the ruler is 2.7 centimeters.



centimeters

Since each centimeter is 10 millimeters, the point is also 27 millimeters.

In the metric system, solids can be measured in units of *mass*.

milligram (mg)	= 0.001 gram
gram (g)	= 1 gram
kilogram (kg)	= 1,000 grams

The standard unit of mass is the *gram*.
- The mass of a vitamin pill may be measured in milligrams.
- A thumbtack has a mass of about 1 gram.
- A full liter bottle of soda has a mass of about 1 kilogram.

Liquids are measured in units of *capacity*.

milliliter (mL)	= 0.001 liter
liter (L)	= 1 liter
kiloliter (kL)	= 1,000 liters

The standard unit of capacity is the *liter*.
- The capacity of a soup spoon is measured in milliliters.
- A 1-liter soda bottle can fill about four average-sized glasses.
- Water in a river is measured in kiloliters.

Choose an appropriate metric unit of length.

1. distance across the end of a pencil _____
2. length of a thumb _____
3. distance from your home to Australia _____
4. width of a swimming pool _____

Choose an appropriate metric unit of mass.

5. the mass of a tooth _____
6. the mass of a puppy _____

Choose an appropriate metric unit of capacity.

7. the capacity of a bucket of water _____
8. the amount of water in a pond _____

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Name _____ Class _____ Date _____

Practice 9-1

Metric Units of Length, Mass, and Capacity

Choose an appropriate metric unit of length.

1. the height of an office building _____
2. the width of a page of a text _____
3. the length of an ant _____
4. the depth of a lake _____

Choose an appropriate metric unit of mass.

5. a grain of rice _____
6. a bag of groceries _____
7. a feather _____
8. a cat _____
9. a leaf _____
10. an eraser _____

Choose an appropriate metric unit of capacity.

11. a gasoline tank _____
12. a coffee mug _____
13. 6 raindrops _____
14. a pitcher of juice _____
15. a swimming pool _____
16. a can of paint _____

Is each measurement reasonable? Write *True* or *False*.

17. The mass of the horse is about 500 kg. _____
18. Jean drank 5.8 L of juice at breakfast. _____
19. A mug holds 250 mL of hot chocolate. _____
20. A penny is about 3 kg. _____
21. The mass of a nail is about 500 g. _____
22. A soccer field is about 5 m long. _____

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Name _____ Class _____ Date _____

Puzzle 9-1

Metric Units of Length, Mass, and Capacity

Use the word list on the right to answer the questions and complete the crossword puzzle.

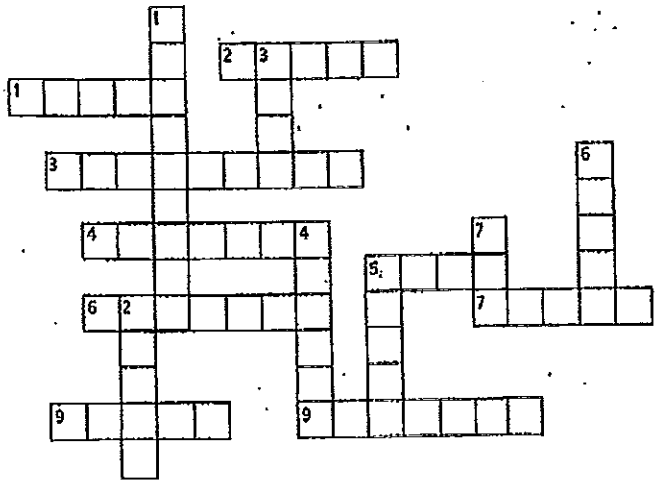
Across:

1. Use grams to measure the mass of a _____.
2. Use centimeters to measure the length of a garden _____.
3. Use kilograms to measure the mass of an _____.
4. Use liters to measure the capacity of a _____.
5. Use milligrams to measure the mass of a _____.
6. Use centimeters to measure the length of your computer _____.
7. Use kilometers to measure the length of a _____.
8. Use meters to measure the length of a cargo _____.
9. Use meters to measure the length of a _____.

Down:

1. Use kilometers to measure the distance across _____.
2. Use kiloliters to measure the capacity of the _____.
3. Use millimeters to measure the length of your finger _____.
4. Use liters to measure the capacity of a _____.
5. Use meters to measure the distance across a football _____.
6. Use grams to measure the mass of a _____.
7. Use kilograms to measure the mass of a _____.

Word List
mouse
bathtub
armadillo
nail
field
plane
flea
barrel
ocean
snake
Manhattan
car
spoon
ladybug
river
monitor



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Name _____ Class _____ Date _____

Reteaching 9-2

Converting Units in the Metric System

The most common metric units use the prefixes *kilo-*, *centi-*, and *milli-*.

Prefix	Meaning	Examples
kilo-	1,000	kilometer (1,000 m), kilogram (1,000 g), kiloliter (1,000 L)
centi-	$\frac{1}{100}$ or 0.01	centimeter (or 0.01 m), centigram (or 0.01 g), centiliter (or 0.01 L)
milli-	$\frac{1}{1,000}$ or 0.001	millimeter (or 0.001 m), milligram (or 0.001 g), milliliter (or 0.001 L)

Multiply to convert from larger units to smaller units.

Convert 4.7 kilometers to meters.

- A kilometer is larger than a meter. Multiply.
- Since 1 km = 1,000 m, multiply by 1,000.

$4.7 \times 1{,}000 = 4{,}700$
4.7 km = 4,700 m

- Or use mental math. Multiply by 1,000 by moving the decimal point three places to the *right*.

4.7 → 4,700

Divide to convert from smaller units to larger units.

Convert 347 milliliters to liters.

- A milliliter is smaller than a liter. Divide.
- Since 1,000 mL = 1 L, divide by 1,000.

$347 \div 1{,}000 = 0.347$
347 mL = 0.347 L

- Or use mental math. Divide by 1,000 by moving the decimal point three places to the *left*.

347 → 0.347

Convert each measurement to meters.

1. 2.5 km _____
2. 371 cm _____
3. 490 mm _____
4. 48 cm _____
5. 4 km _____
6. 1,500 mm _____

Convert each measurement to liters.

7. 0.6 kL _____
8. 799 cL _____
9. 0.9 mL _____
10. 35.6 mL _____
11. 0.006 kL _____
12. 1.8 cL _____

Convert each measurement to grams.

13. 4 kg _____
14. 661 cg _____
15. 1,500 mg _____
16. 2 cg _____
17. 1.95 kg _____
18. 2.3 mg _____

Convert each measurement.

19. 19 mL = _____ L
20. 5.5 kg = _____ g
21. 4.9 cL = _____ L
22. 730 mg = _____ g
23. 0.06 kL = _____ L
24. 2,540 mm = _____ cm

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Name _____ Class _____ Date _____

Practice 9-2

Converting Units in the Metric System

Convert each measurement to meters.

1. 800 mm _____
2. 50 cm _____
3. 2.6 km _____
4. 7 km _____
5. 35 km _____
6. 40 mm _____
7. 300 cm _____
8. 1.8 km _____

Convert each measurement to liters.

9. 160 mL _____
10. 0.36 kL _____
11. 0.002 kL _____
12. 240.9 mL _____
13. 8 kL _____
14. 80 mL _____
15. 17.3 mL _____
16. 0.09 kL _____

Convert each measurement to grams.

17. 4,000 mg _____
18. 7 kg _____
19. 56,000 mg _____
20. 0.19 kg _____
21. 600 mg _____
22. 90 kg _____
23. 2,800 mg _____
24. 0.4 kg _____

Convert each measurement.

25. ? km = 3,400 m _____
26. 420 mL = ? cL _____
27. 37 cm = ? m _____
28. 5,100 mg = ? cg _____
29. 77.8 mm = ? cm _____
30. 9.5 kL = ? L _____
31. 2.564 kg = ? g _____
32. ? m = 400,000 cm _____
33. 948 mm = ? cm _____

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Name _____ Class _____ Date _____

Puzzle 9-2

Converting Units in the Metric System

Shade all the boxes in each row that represent equivalent values. The first one has been done for you.

4 km R	400,000 cm N	400,000 mm M	4,000 m P
2,000 L A	0.2 kL E	200 L E	200,000 mL A
7,000 mg L	70 g R	7 g G	7.0 g T
20 L O	0.02 kL I	20,000 mL E	200,000 mL A
300 mm T	30,000 cm N	0.3 km H	300 m C
9.05 kL L	9,050 L H	9,050,000 mL L	905 L H
67 g O	6.7 g O	0.067 kg A	67,000 mg A
40,125 mm M	0.040125 km V	40.125 m B	401.25 cm N

Use the unshaded letters, in order from top to bottom, to complete the phrase:

A _____ is 42,195 meters long!

Measuring Worksheet 10

Convert the measuring units as indicated.

1a. **500 cm = _____ m**

1b. **10 km = _____ m**

2a. **800 cm = _____ m**

2b. **3000 m = _____ km**

3a. **9 cm = _____ mm**

3b. **6 cm = _____ mm**

4a. **8 km = _____ m**

4b. **4000 m = _____ km**

5a. **7000 m = _____ km**

5b. **1000 cm = _____ m**

6a. **80 mm = _____ cm**

6b. **5000 m = _____ km**

7a. **1 m = _____ cm**

7b. **10 cm = _____ mm**

8a. **2 cm = _____ mm**

8b. **2000 m = _____ km**

9a. **300 cm = _____ m**

9b. **200 cm = _____ m**

10a. **900 cm = _____ m**

10b. **30 mm = _____ cm**

Measuring Worksheet 11

Convert the measuring units as indicated.

1a. **1877 m = _____ km**

1b. **1333 m = _____ km**

2a. **920 m = _____ km**

2b. **139 m = _____ km**

3a. **8236 m = _____ km**

3b. **957 cm = _____ m**

4a. **342 mm = _____ cm**

4b. **400 cm = _____ m**

5a. **827 cm = _____ m**

5b. **9.91 m = _____ cm**

6a. **8.509 km = _____ m**

6b. **253 cm = _____ m**

7a. **2.98 m = _____ cm**

7b. **720 mm = _____ cm**

8a. **8.036 km = _____ m**

8b. **594 mm = _____ cm**

9a. **0.245 km = _____ m**

9b. **9.46 m = _____ cm**

10a. **1.22 m = _____ cm**

10b. **7.75 m = _____ cm**

Measuring Worksheet 12

Convert the measuring units as indicated.

1a. **2000 g = _____ kg**

1b. **9 L = _____ ml**

2a. **1000 g = _____ kg**

2b. **8000 g = _____ kg**

3a. **10 L = _____ ml**

3b. **6000 ml = _____ L**

4a. **4 L = _____ ml**

4b. **4 kg = _____ g**

5a. **10 kg = _____ g**

5b. **1 L = _____ ml**

6a. **5000 ml = _____ L**

6b. **6000 g = _____ kg**

7a. **3 kg = _____ g**

7b. **7 kg = _____ g**

8a. **3000 ml = _____ L**

8b. **9000 g = _____ kg**

9a. **2000 ml = _____ L**

9b. **5 kg = _____ g**

10a. **7000 ml = _____ L**

10b. **8000 ml = _____ L**

Measuring Worksheet 13

Convert the measuring units as indicated.

1a. **0.225 kg = _____ g**

1b. **5.879 kg = _____ g**

2a. **8.201 kg = _____ g**

2b. **9.059 L = _____ ml**

3a. **8.798 kg = _____ g**

3b. **5600 g = _____ kg**

4a. **0.21 L = _____ ml**

4b. **8.173 L = _____ ml**

5a. **404 ml = _____ L**

5b. **9.704 L = _____ ml**

6a. **4649 ml = _____ L**

6b. **118 g = _____ kg**

7a. **4395 g = _____ kg**

7b. **9748 ml = _____ L**

8a. **8849 g = _____ kg**

8b. **5913 g = _____ kg**

9a. **1.104 kg = _____ g**

9b. **6428 g = _____ kg**

10a. **7540 g = _____ kg**

10b. **9924 g = _____ kg**

Name _____ Class _____ Date _____

Reteaching 6-6

The Customary System

Choose an appropriate customary unit of measure to describe the following:

length of a train engine You need a unit to measure length. A train engine will be quite long, so choose feet or yards.	weight of a train engine You need a unit to measure weight. Since a train engine will be quite heavy, choose tons.
amount of liquid in a large bucket You need a unit to measure capacity. A bucket is likely to contain quite a bit of water, so choose quarts or gallons.	length of a CD case You need a unit to measure length. A CD case is quite small, so choose inches.
weight of a bale of straw You need a unit to measure weight. A bale of straw is heavy, so choose pounds.	amount of liquid in a bottle of eye drops You need a unit to measure capacity. Since a bottle of eye drops will be very small, so choose fluid ounces.

Choose an appropriate unit for each measurement. Explain.

1. the length of a garden

_____

_____

2. the length of a hummingbird

_____

_____

Choose an appropriate unit for each weight. Explain.

3. the weight of a letter

_____

_____

4. the weight of steel girders

_____

_____

Choose an appropriate unit for each capacity. Explain.

5. a pitcher of juice

_____

_____

6. the water in an aquarium

_____

_____

Compare using <, ≈, or >.

7. weight of a tank ☐ 100 pounds

8. length of a TV remote ☐ 5 inches

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Name _____ Class _____ Date _____

Practice 6-6

The Customary System

Use the table to choose an appropriate unit of measurement for each item. Explain.

Customary Units of Measure

	Name	Approximate Comparison
Length	inch	Length of a soda bottle cap
	foot	Length of an adult male's foot
	mile	Length of 14 football fields
Weight	ounce	Weight of a slice of bread
	pound	Weight of a loaf of bread
	ton	Weight of two grand pianos
Capacity	cup	Amount of water in a drinking glass
	quart	Amount in a bottle of fruit punch
	gallon	Amount in a large can of paint

1. height of a stop sign

_____

_____

2. length of a leaf

_____

_____

3. width of a door

_____

_____

4. depth of the ocean

_____

_____

5. weight of a small notebook

_____

_____

6. weight of a couch

_____

_____

7. weight of a garbage truck

_____

_____

8. weight of a box of books

_____

_____

9. water in a swimming pool

_____

_____

10. water in a bathtub

_____

_____

11. a soup in a can

_____

_____

12. milk in a carton

_____

_____

Compare using <, =, or >.

13. water you use to wash dishes ☐ 1 cup

14. the depth of the Grand Canyon ☐ 30 miles

15. the weight of a cereal bowl ☐ 6 ounces

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Name _____ Class _____ Date _____

Puzzle 6-6

The Customary System

Circle the letter of the best unit to use when measuring each object described. Unscramble the circled letters to solve the puzzle.

1. the weight of a tractor trailer	Q. pounds	R. tons	S. ounces
2. the weight of a Dalmatian puppy	A. pounds	B. tons	C. ounces
3. the distance from Dallas to Miami	J. feet	K. yards	L. miles
4. the length of a pencil	M. inches	N. feet	O. miles
5. a dosage of cough syrup	A. ounces	B. cups	C. pints
6. a bag of apples from the grocer	M. ounces	N. pounds	O. tons
7. the amount of oil in a car	B. cups	C. pints	D. quarts
8. the water in a swimming pool	X. pints	Y. gallons	Z. ounces

Which state gave up some of its land to form Washington, D. C.?

_____

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Name _____ Class _____ Date _____

Reteaching 6-7

Changing Units in the Customary System

Complete the statement: $5\frac{5}{8}$ c = ? fl oz

① Find the relationship between cups and fluid ounces: 1 c = 8 fl oz

② Since there are 8 fluid ounces in each cup, multiply the number of cups by 8.

$$5\frac{5}{8} \times 8 = \frac{45}{8} \times 8$$

$$= \frac{45}{\cancel{8}_1} \times \frac{\cancel{8}^1}{1}$$

$$= 45$$

$5\frac{5}{8}$ c = 45 fl oz

Subtract: 9 ft 8 in. − 2 ft 11 in.

① Find the relationship between feet and inches: 1 ft = 12 in.

② Use the relationship to rename 9 feet 8 inches. as 8 feet 20 inches.

③ Subtract.

9 ft 8 in.	→	8 ft 20 in.
− 2 ft 11 in.		− 2 ft 11 in.
		6 ft 9 in.

9 ft 8 in. − 2 ft 11 in. = 6 ft 9 in.

To compare amounts, first change them to the same unit.

Compare: 25 fl oz ? 3 c → 25 fl oz ? 24 fl oz

25 fl oz > 24 fl oz

25 fl oz > 3 c

Complete each statement.

1. 12 ft = ? yd _____
2. 32 qt = ? gal _____
3. $1\frac{1}{2}$ mi = ? ft _____
4. 15 pt = ? qt _____
5. 440 yd = ? mi _____
6. $2\frac{1}{2}$ T = ? lb _____

Add or subtract.

7. 3 pt 1 c + 4 pt 1 c _____
8. 4 yd 1 ft − 1 yd 2 ft _____
9. 5 lb 20 oz + 8 lb 12 oz _____

Use <, =, or > to complete each statement.

10. 43 in. ☐ 4 ft
11. $8\frac{1}{2}$ gal ☐ 136 c
12. 108 in. ☐ $3\frac{1}{2}$ yd
13. $2\frac{1}{2}$ lb ☐ 40 oz
14. 7,000 lb ☐ $3\frac{1}{4}$ t
15. $5\frac{1}{2}$ pt ☐ 3 qt
16. A semi-truck can hold 8,500 pounds of cargo. How many tons can it hold?

_____

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Name _____ Class _____ Date _____

Practice 6-7

Changing Units in the Customary System

Complete each statement.

1. $7\frac{1}{2}$ ft = _____ yd
2. 45 in. = _____ ft
3. $1\frac{1}{4}$ mi = _____ ft
4. $2\frac{1}{2}$ lb = _____ oz
5. 28 fl oz = _____ c
6. $2\frac{3}{4}$ T = _____ lb
7. 3 lb = _____ oz
8. 10 pt = _____ qt

Add or subtract.

9. 8 ft 3 in.
   − 3 ft 5 in.
   _____
10. 12 qt 1 pt
    + 11 qt 1 pt
    _____
11. 9 yd 15 in.
    + 7 yd 28 in.
    _____
12. 105 lb 8 oz
    − 98 lb 12 oz
    _____
13. 3 c 7 fl oz
    + 4 c 6 fl oz
    _____
14. 13 yd 2 ft
    − 6 yd 1 ft
    _____

Solve.

15. The odometer of an automobile shows tenths of a mile. How many feet are in $\frac{1}{10}$ mi?

    _____

16. How many inches are in one mile?

    _____

17. Jarel bought 3 containers of cottage cheese, each weighing 24 oz. How many pounds did she buy?

    _____

18. Katie poured 12 oz of juice from a full 6-qt container. How many cups were left in the container?

    _____

Use <, =, or > to complete each statement.

19. $4\frac{1}{3}$ ft ☐ 50 in.
20. 136 oz ☐ $8\frac{1}{2}$ lb
21. 26 fl oz ☐ 3 c
22. 5 qt ☐ $1\frac{1}{4}$ gal
23. 8 yd ☐ 21 ft
24. 4,500 lb ☐ $3\frac{1}{2}$ T

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Measuring Worksheet 3

Convert the measuring units as indicated.

1a. **60 in = _____ ft**

1b. **132 in = _____ ft**

2a. **36 ft = _____ yd**

2b. **24 ft = _____ yd**

3a. **4 ft = _____ in**

3b. **27 ft = _____ yd**

4a. **2 yd = _____ ft**

4b. **30 ft = _____ yd**

5a. **5 yd = _____ ft**

5b. **8 ft = _____ in**

6a. **144 in = _____ ft**

6b. **72 in = _____ ft**

7a. **7 ft = _____ in**

7b. **10 ft = _____ in**

8a. **108 in = _____ ft**

8b. **33 ft = _____ yd**

9a. **3 ft = _____ in**

9b. **6 yd = _____ ft**

10a. **3 ft = _____ yd**

10b. **21 ft = _____ yd**

Measuring Worksheet 4

Convert the measuring units as indicated.

1a. **10560 ft = _____ mi**

1b. **21120 ft = _____ mi**

2a. **8800 yd = _____ mi**

2b. **5 mi = _____ ft**

3a. **2 mi = _____ yd**

3b. **5280 yd = _____ mi**

4a. **4 mi = _____ yd**

4b. **1 mi = _____ ft**

5a. **1 mi = _____ yd**

5b. **15840 ft = _____ mi**

6a. **4 mi = _____ ft**

6b. **4 mi = _____ ft**

7a. **4 mi = _____ yd**

7b. **3 mi = _____ yd**

8a. **5 mi = _____ ft**

8b. **8800 yd = _____ mi**

9a. **4 mi = _____ ft**

9b. **15840 ft = _____ mi**

10a. **5 mi = _____ yd**

10b. **7040 yd = _____ mi**

Measuring Worksheet 5

Convert the measuring units as indicated.

1a. **5 pt = _____ C**

1b. **5 gal = _____ qt**

2a. **6 gal = _____ qt**

2b. **32 qt = _____ gal**

3a. **8 oz = _____ C**

3b. **16 C = _____ pt**

4a. **6 C = _____ pt**

4b. **6 C = _____ oz**

5a. **8 qt = _____ gal**

5b. **7 gal = _____ qt**

6a. **12 qt = _____ gal**

6b. **6 pt = _____ C**

7a. **3 C = _____ oz**

7b. **8 C = _____ oz**

8a. **5 C = _____ oz**

8b. **14 C = _____ pt**

9a. **1 pt = _____ C**

9b. **16 oz = _____ C**

10a. **4 C = _____ pt**

10b. **32 oz = _____ C**

Name _____ Class _____ Date _____

Reteaching 9-3

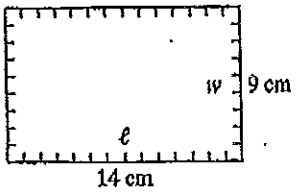
Perimeters and Areas of Rectangles

Perimeter

The *perimeter* of a figure is the sum of the lengths of its sides. Opposite sides of a rectangle are equal. To find the perimeter, add the 2 lengths (ℓ) and the 2 widths (w).

$$P = \ell + \ell + w + w \text{ or } P = 2\ell + 2w$$

Find the perimeter.



$$\begin{aligned} P &= 2\ell + 2w \\ &= 2(14) + 2(9) \\ &= 28 + 18 = 46 \end{aligned}$$

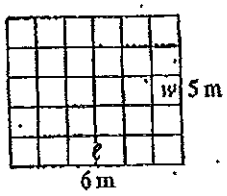
The perimeter is 46 centimeters.

Area

The *area* of a figure is the number of square units needed to cover the figure. To find the area of a rectangle, multiply the length (ℓ) and the width (w).

$$A = \ell \times w$$

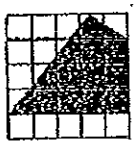
Find the area.

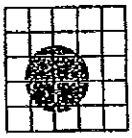


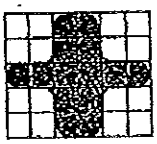
$$\begin{aligned} A &= \ell \times w \\ &= 6 \times 5 \\ &= 30 \end{aligned}$$

The area is 30 square meters.

Estimate the area of each figure. Each square represents 1 square inch.

1. 

2. 

3. 

Find the perimeter and area of each rectangle or square.

4. $\ell = 12$ cm, $w = 2$ cm

5. $\ell = 9$ ft, $w = 7.5$ ft

6. $\ell = 2.5$ m, $w = 2.5$ m

7. $\ell = 5.5$ in., $w = 5.5$ in.

8. $\ell = 6.2$ in., $w = 3.4$ in.

9. $\ell = 4.5$ ft, $w = 0.75$ ft

10. What is the area of a square with a perimeter of 60 meters?

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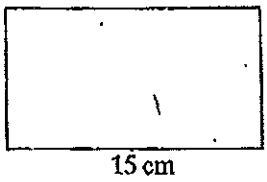
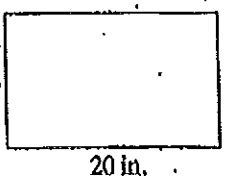
Name _____ Class _____ Date _____

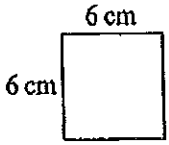
Practice 9-3

Perimeters and Areas of Rectangles

Find the perimeter and area of each rectangle.

1. 

2. 

3. 

4. $\ell = 5$ in., $w = 13$ in. _____

5. $\ell = 18$ m, $w = 12$ m _____

6. $\ell = 3$ ft, $w = 8$ ft _____

Find the area of each square given the side s or the perimeter P.

7. $s = 3.5$ yd _____

8. $s = 9$ cm _____

9. $P = 24$ m _____

10. $P = 38$ in. _____

Choose a calculator, paper and pencil, or mental math to solve.

11. The length of a rectangle is 8 centimeters. The width is 6 centimeters.
    a. What is the area? _____ b. What is the perimeter? _____

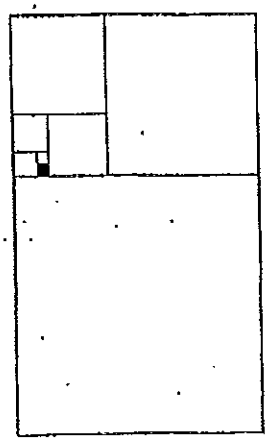
12. The area of a rectangle is 45 square inches. One dimension is 5 inches. What is the perimeter? _____

13. The perimeter of a square is 36 centimeters. What is the area of the square? _____

14. The perimeter of a rectangle is 38 centimeters. The length is 7.5 centimeters. What is the width? _____

15. The figure at the right contains only squares. Each side of the shaded square is 1 unit. What is the length, width, and area of the figure?

_____



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Name _____ Class _____ Date _____

Puzzle 9-3

Perimeters and Areas of Rectangles

Materials needed: colored pencils, markers, or crayons

Match each set of dimensions below with the perimeter and area of the rectangle they form. Show your answers by coloring each matching set of values with a different color. The first one has been done for you. Use the remaining values to solve the puzzle.

5×6	$P = 10$	$P = 28$	$A = 6$	2×2
$A = 35$	3×2	5×5	$A = 8$	3×14
$P = 30$	$A = 42$	$P = 22$	7×5	8×7
3×6	$P = 32$	$P = 12$	$P = 24$	$P = 20$
$A = 60$	8×8	$P = 8$	$A = 30$	6×10
$P = 34$	2×12	2×4	4×4	$A = 4$
$A = 64$	$A = 25$	$A = 56$	$P = 32$	$A = 24$

There are only two rectangles whose area is exactly the same as their perimeter if the dimensions are whole numbers greater than zero.

What are their dimensions? _____

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Calculating Area & Perimeter

Name: _____ Date: _____

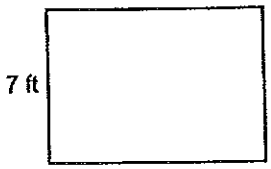
Calculate the area and perimeter of each shape.

(1)

Perimeter: _____

Area: _____

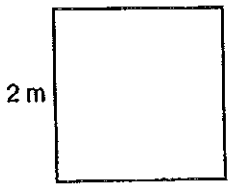
(2)



Perimeter: _____

Area: _____

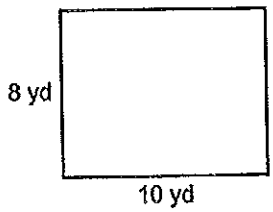
(3)



Perimeter: _____

Area: _____

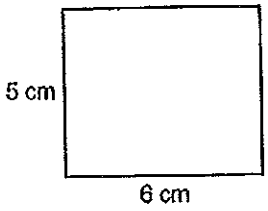
(4)



Perimeter: _____

Area: _____

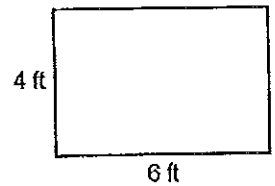
(5)



Perimeter: _____

Area: _____

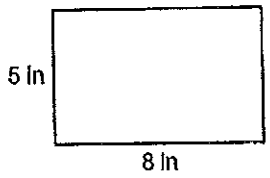
(6)



Perimeter: _____

Area: _____

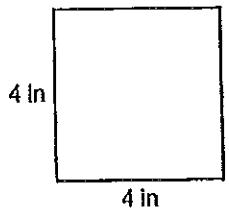
(7)



Perimeter: _____

Area: _____

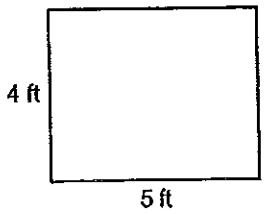
(8)



Perimeter: _____

Area: _____

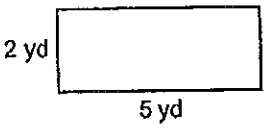
(9)



Perimeter: _____

Area: _____

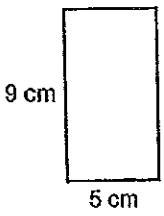
(10)



Perimeter: _____

Area: _____

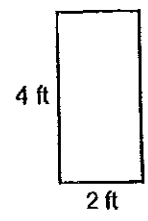
(11)



Perimeter: _____

Area: _____

(12)



Perimeter: _____

Area: _____

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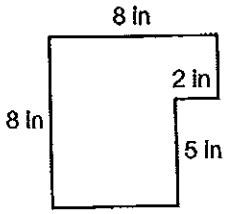
Calculating Area & Perimeter

Name: _____ Date: _____

Calculate the area and perimeter of each shape.

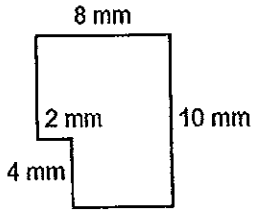
(1)



Perimeter: _____

Area: _____

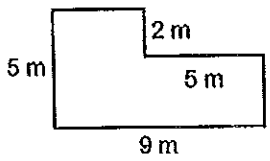
(2)



Perimeter: _____

Area: _____

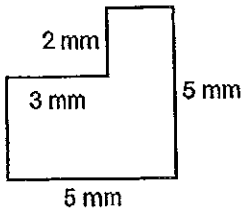
(3)



Perimeter: _____

Area: _____

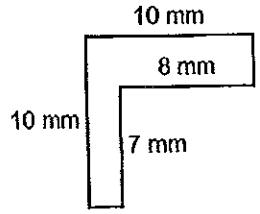
(4)



Perimeter: _____

Area: _____

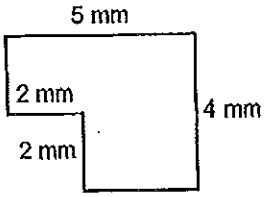
(5)



Perimeter: _____

Area: _____

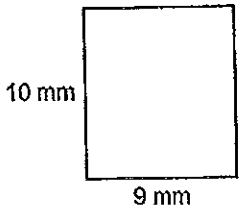
(6)



Perimeter: _____

Area: _____

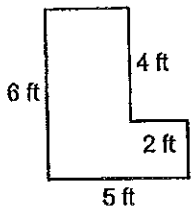
(7)



Perimeter: _____

Area: _____

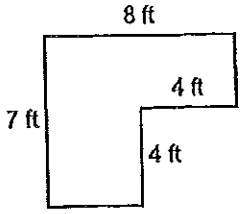
(8)



Perimeter: _____

Area: _____

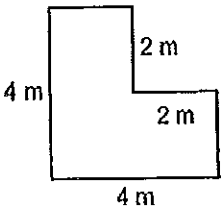
(9)



Perimeter: _____

Area: _____

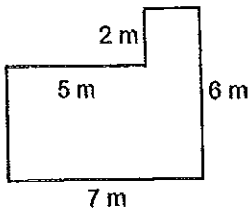
(10)



Perimeter: _____

Area: _____

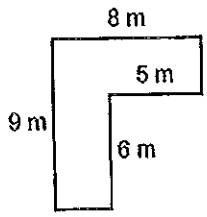
(11)



Perimeter: _____

Area: _____

(12)



Perimeter: _____

Area: _____

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Name _____ Class _____ Date _____

Reteaching 9-4

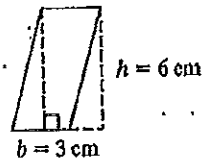
Areas of Parallelograms and Triangles

Parallelogram

To find the area of a parallelogram, multiply base times height.

$A = b \times h$

Find the area of the parallelogram.



$A = b \times h$
$= 3 \times 6$
$= 18$

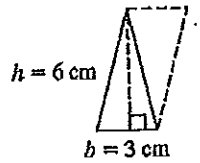
The area is 18 square centimeters.

Triangle

The area of a triangle is $\frac{1}{2}$ times the base times the height.

$A = \frac{1}{2}b \times h$

Find the area of the triangle.



$A = \frac{1}{2} \times b \times h$
$= \frac{1}{2} \times 3 \times 6$
$= 9$

The area is 9 square centimeters.

Find the area of each parallelogram.

1. $b = 6$ ft, $h = 8$ ft _____
2. $b = 12$ in., $h = 9$ in. _____
3. $b = 6$ yd, $h = 12$ yd _____
4. $b = 2.8$ in., $h = 3.4$ in. _____
5. $b = 31$ yd, $h = 19$ yd _____
6. $b = 4.5$ m, $h = 4.5$ m _____
7. $b = 15$ cm, $h = 7$ cm _____
8. $b = 8.3$ ft, $h = 11.7$ ft _____
9. $b = 14.4$ m, $h = 6.5$ m _____

Find the area of each triangle.

10. $b = 8$ cm, $h = 14$ cm _____
11. $b = 7$ in., $h = 18$ in. _____
12. $b = 11$ m, $h = 4.6$ m _____
13. $b = 6.4$ ft, $h = 3.5$ ft _____
14. $b = 104$ in., $h = 55$ in. _____
15. $b = 5.9$ cm, $h = 4.2$ cm _____
16. $b = 1.7$ m, $h = 3.3$ m _____
17. $b = 5.8$ yd, $h = 5.8$ yd _____
18. $b = 8.6$ in., $h = 0.8$ in. _____

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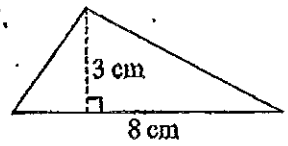
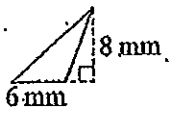
Name _____ Class _____ Date _____

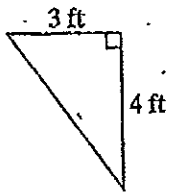
Practice 9-4

Areas of Parallelograms and Triangles

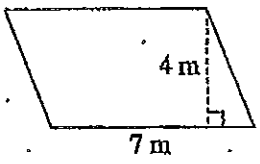
Find the area of each triangle.

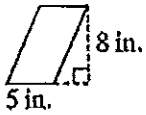
1. 

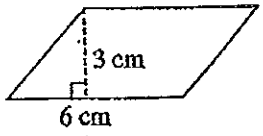
2. 

3. 

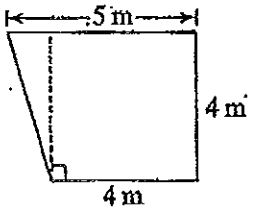
Find the area of each parallelogram.

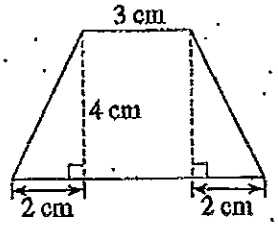
4. 

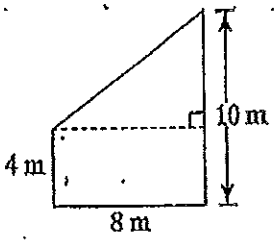
5. 

6. 

Find the area of each complex figure.

7. 

8. 

9. 

10. Draw and label a triangle and a parallelogram that each have an area of 20 square units.

Tell whether each statement is *true* or *false*.

11. A parallelogram and triangle can have the same base and area. _____

12. Two triangles that have the same base always have the same area. _____

13. Any obtuse triangle has a greater area than any acute triangle. _____

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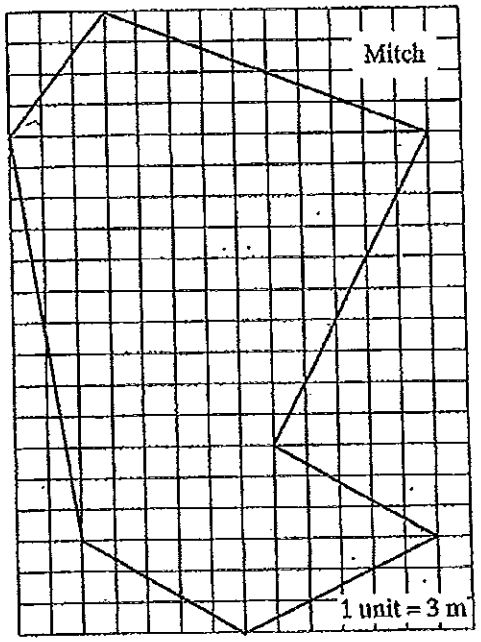
Name _____ Class _____ Date _____

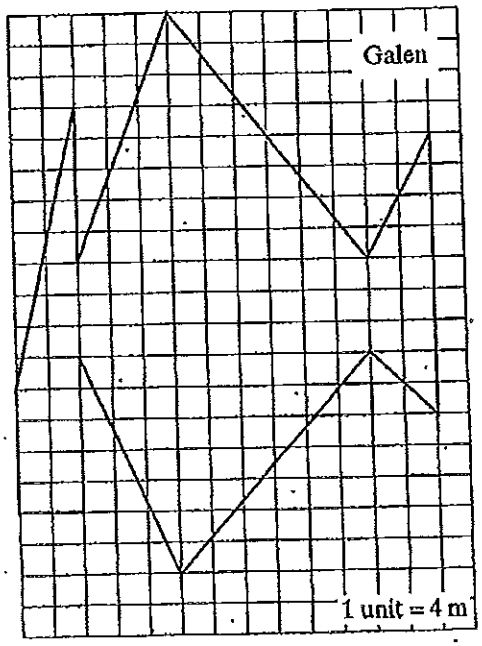
Puzzle 9-4

Areas of Parallelograms and Triangles

Mitch and Galen formed a team and competed in the annual City Park Scavenger Hunt. They each took separate paths through the park searching for the items on their lists. The rules for the annual city-wide event are simple: the first team to gather all of the list items wins, but each team is only allowed to cover a total area of 3,500 m^2. The maps below show Mitch and Galen's paths as they moved through the park. They were the first team to find all of the items! But did they stay within the 3,500 m^2 limit?

Hint: Be sure to check the scale for each map!





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Math 6 - On

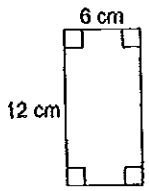
Name_____

Area of Parallelograms and Triangles

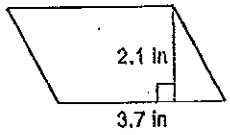
Date_____ Period____

Find the area of each.

1)



2)



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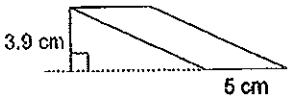

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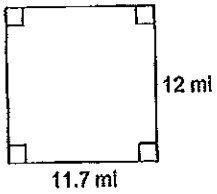

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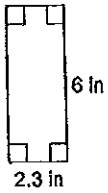

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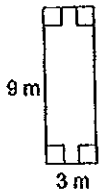

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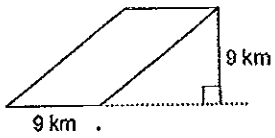

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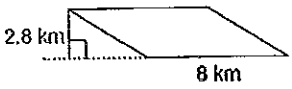

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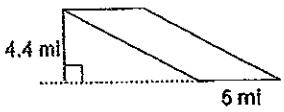

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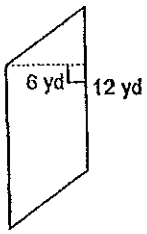

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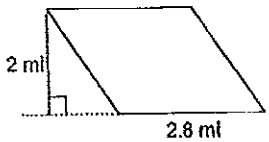

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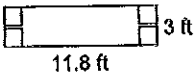

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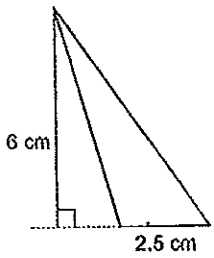

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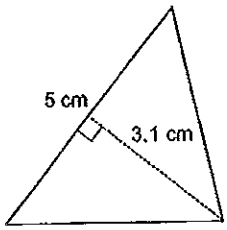

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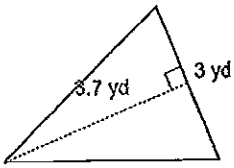

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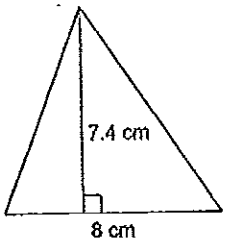

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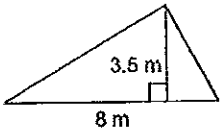

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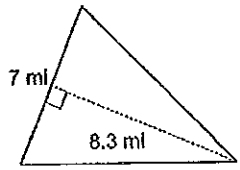

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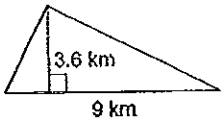

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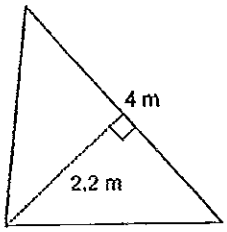

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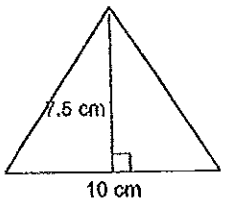

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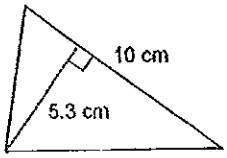

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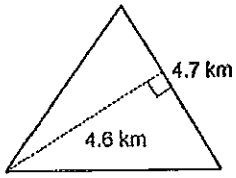

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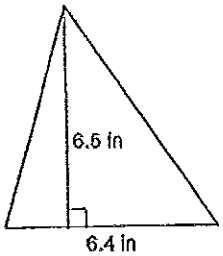
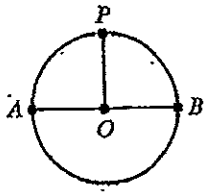


Name _____ Class _____ Date _____

Reteaching 9-5

Circles and Circumference

Parts of a Circle



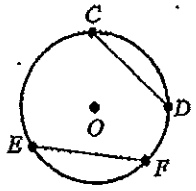
Point O is the center of the *circle*.
$\overline{AB}$ is a *diameter*.
$\overline{OA}$ is a *radius*. $\overline{OP}$ is also a radius.

In any circle, the length of the diameter is twice the length of the radius.

$$d = 2r$$

The radius is half the diameter.

$$r = \frac{d}{2}$$



$\overline{CD}$ and $\overline{EF}$ are *chords*.
A diameter of a circle is the longest chord.

Circumference of a Circle

Circumference is the distance around a circle.

To find circumference:

- Multiply π times the diameter.

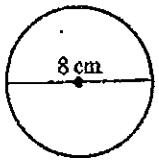
  $C = \pi d$

- Or multiply π times twice the radius.

  $C = 2\pi r$

To estimate the circumference of a circle, use 3 for π.

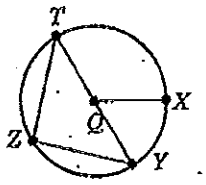
Estimate the circumference of a circle.



$C \approx 3d$
$= 3 \times 8$
$= 24$

The circumference is about 24 centimeters.

List each of the following for circle Q.



1. one diameter _____
2. three chords _____
3. three radii _____

Find the unknown length for a circle with the given dimension.

4. $r = 8$ cm
   $d =$ _____
5. $d = 110$ in.
   $r =$ _____
6. $d = 48$ ft
   $r =$ _____

Use 3 for π to estimate the circumference of a circle with the given radius or diameter.

7. $r = 12$ in. _____
8. $d = 15$ yd _____
9. $d = 7$ m _____
10. $d = 13$ ft _____
11. $r = 21$ yd _____
12. $r = 19$ cm _____

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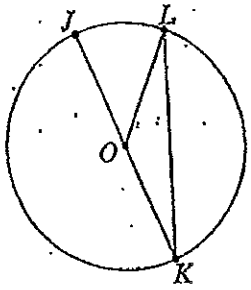
Name _____ Class _____ Date _____

Practice 9-5

Circles and Circumference

List each of the following for circle O.

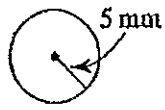


1. three radii _____
2. one diameter _____
3. two chords _____

Find the unknown length for a circle with the given dimension.

4. $r = 4$ in.; $d =$? _____
5. $d = 15$ cm; $r =$? _____
6. $d = 9$ mm; $r =$? _____

Find the circumference of each circle. Round to the nearest unit.

7. 

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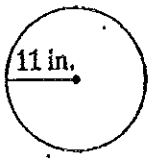
8. 

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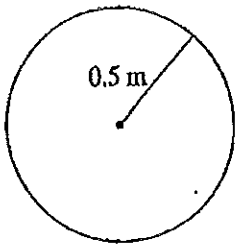
9. 

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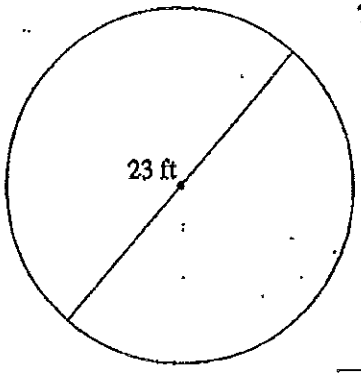
10. 

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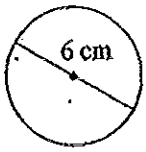
11. 

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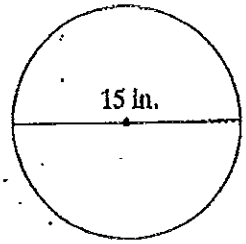
12. 

_____

Estimate the circumference of each circle with the given radius or diameter. Use 3 for π.

13. $d = 4$ in. _____
14. $d = 8$ cm _____
15. $r = 6$ m _____
16. $r = 10$ ft _____
17. $r = 3$ in. _____
18. $d = 20$ cm _____

Find the diameter of a circle with the given circumference. Round to the nearest unit.

19. $C = 128$ ft _____
20. $C = 36$ cm _____
21. $C = 200$ m _____
22. $C = 85$ in. _____
23. $C = 57$ cm _____
24. $C = 132$ in. _____

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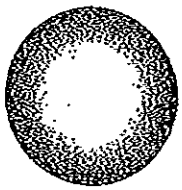
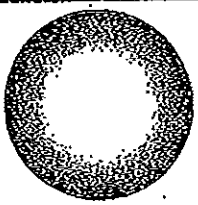
Name _____ Class _____ Date _____

Puzzle 9-5

Circles and Circumference

Ian and Caitlin are researching the Solar System. Caitlin made a list of the circumferences of each of the nine planets at its equator. Ian found pictures of each planet and labeled each picture with the planet's radius. When they began to arrange the pictures, they realized that Ian forgotten to write the names of the planets on the pictures and that he had mislabeled one of the pictures with the wrong radius. Use Caitlin's list to correctly label the planets and to determine which picture is mislabeled. Then re-label the picture with the correct value.

_____ 3,963 mi	_____  37,449 mi	_____ 1,515.5 mi
_____ 15,881.5 mi	_____ 3,760.5 mi	_____ 2,111.5 mi
_____  44,423 mi	_____ 715 mi	_____ 11,400 mi

Caitlin's List

Circumference of the Planets	
Mercury 9522.2 mi	Uranus 99,786.4 mi
Mars 13,266.9 mi	Venus 23,627.9 mi
Pluto 4,492.5 mi	Saturn 235,299.0 mi
Earth 24,900.3 mi	Jupiter 279,117.9 mi
Neptune 96,761.1 mi	

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Math 6 - On

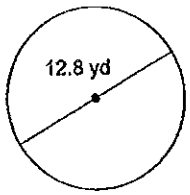
Name_____

Circumference of a Circle. Use Pi = 3.14

Date_____ Period____

Find the circumference of each circle. Round your answer to the nearest tenth.

1)



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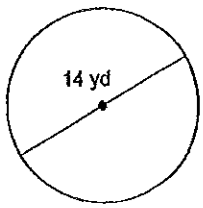
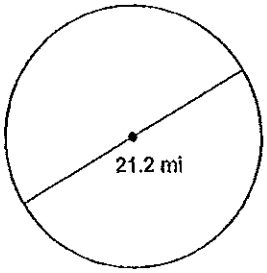


3)



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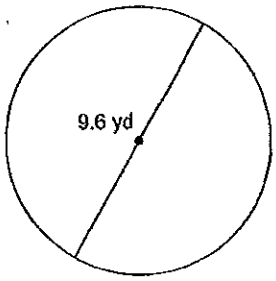

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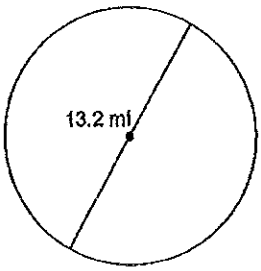

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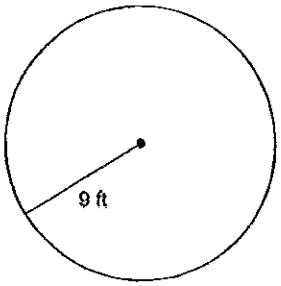

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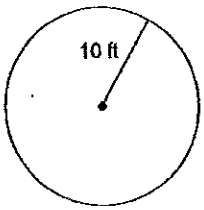

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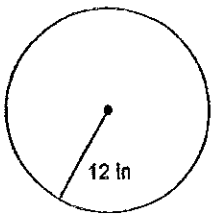

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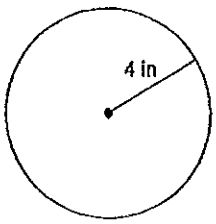

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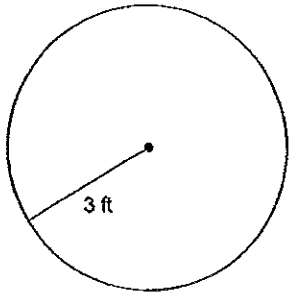


Math 6 - On

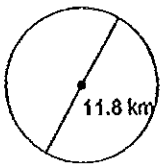
Name_____

Area of a Circle. Use Pi = 3.14

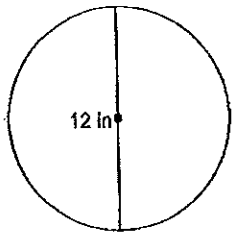
Date_____ Period____

Find the area of each. Round your answer to the nearest tenth.

1)



2)



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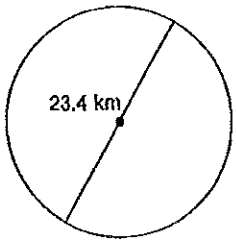

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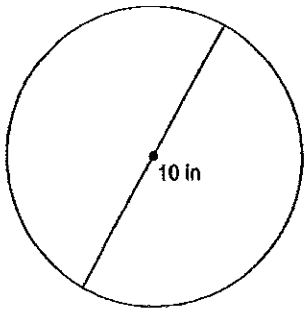

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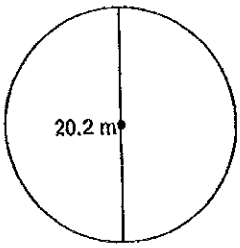

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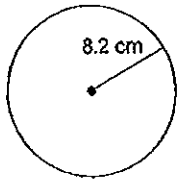

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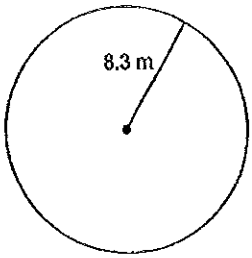

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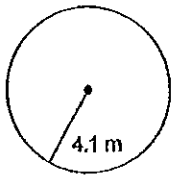

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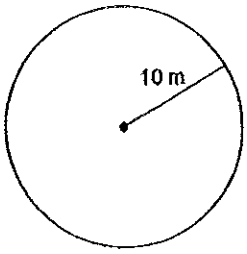

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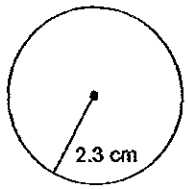


Circles

Student Worksheet

1. The diameter of circle F is 5. Circle G has a diameter that is double that of circle F. Which statement is correct about circle G?

   A The circumference of circle G is half the circumference of circle F.

   B The circumference of circle G is double the circumference of circle F.

   C The radius of circle G is the same as the radius of circle F.

   D The radius of circle G is half the radius of circle F.

2. Deanna wants to find the distance her unicycle moves on the sidewalk when the front tire makes one 360-degree rotation.

Which of the following best describes the distance in one 360-degree rotation?

A. the area of the tire
B. the radius of the tire
C. the diameter of the tire
D. the circumference of the tire

3. A circle has a radius of 18 inches. What is the circumference of the circle in terms of π?

$C = 2\pi r$

A 36π

B 20π

C 18π

D 9π

Circles

Student Worksheet

1. A baker has a circular cake pan that has a radius of 10 cm. What is the ***approximate*** area of the bottom of the cake pan?

   A 1,257 cm^2

   B 314 cm^2

   C 63 cm^2

   D 31 cm^2

2. What is the distance from the center of a circle to any point on the circle?

   A radius

   B circumference

   C diameter

   D chord

3. The clock in Mr. Neal's classroom has a circumference of 34.5 inches. What is the ***approximate*** diameter of the clock?

   A 2 inches

   B 6 inches

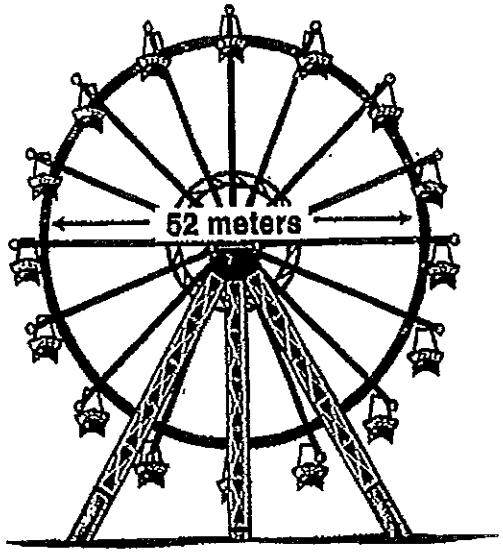
   C 11 inches

   D 22 inches

Circles

Student Worksheet

1. **A Ferris wheel at the local fair has a diameter of 52 meters. Which expression can be used to find its circumference, C, in meters?**



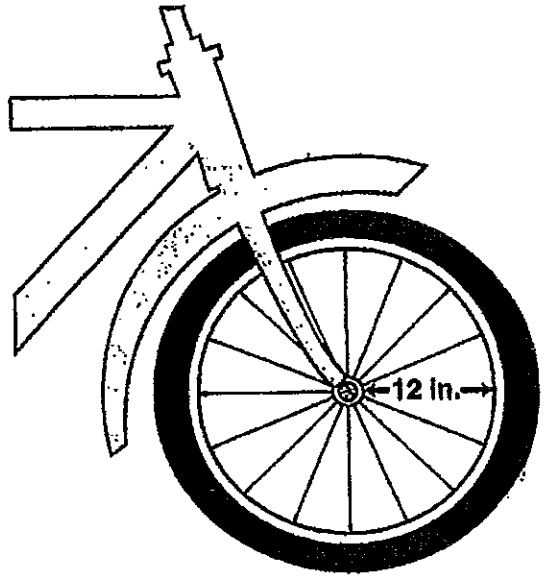
A $C = 26 \times \pi$

B $C = 52 \times \pi$

C $C = 2 \times 52 \times \pi$

D $C = 26^2 \pi$

2. **A bicycle wheel has an inside radius of 12 inches. Which expression could be used to find the inside circumference of this wheel?**



A $2 \times 6 \times \pi$

B $2 \times 12 \times \pi$

C $9 \times 9 \times \pi$

D $12 \times 12 \times \pi$

3. Olivia measures the diameter of a circle. If the diameter is 32 centimeters, what is the radius, in centimeters?

A 64

B 48

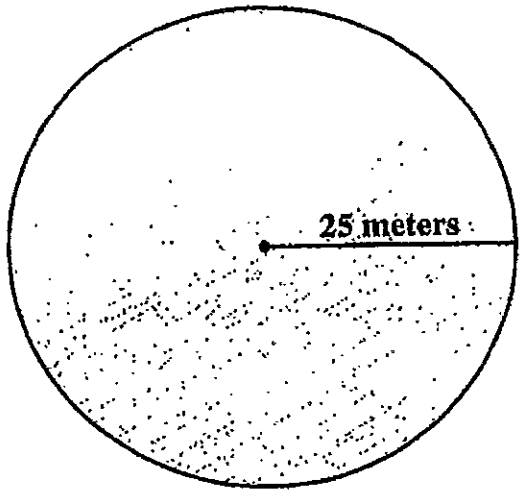
C 32

D 16

Circles

Student Worksheet

1. **This circular stage has a radius of 25 meters.**



Which equation could be used to find the area of the stage in square meters?

A $A = 25\pi$

B $A = 50\pi$

C $A = \pi \cdot 25^2$

D $A = \pi \cdot 50^2$

2. **A circular tree trunk has a diameter of 8 feet. Which equation could be used to find the distance in feet around the tree trunk?**

A $C = 4\pi$

B $C = 8\pi$

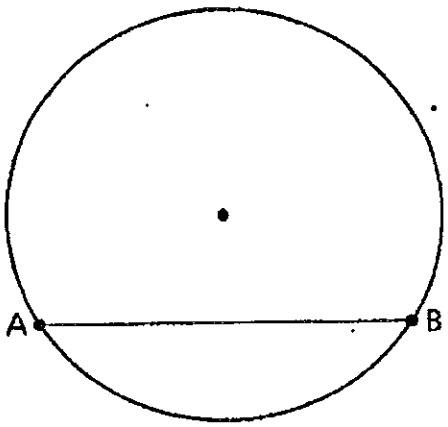
C $C = 16\pi$

D $C = 64\pi$

Circles

Student Worksheet

1. What is the name of line segment AB on the circle below?



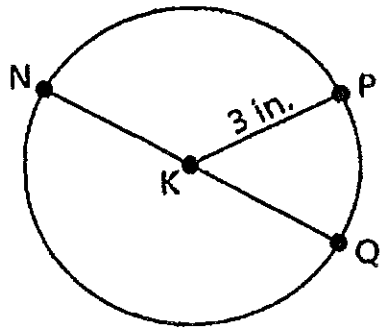
A diameter

B radius

C chord

D arc

2. A circle has a diameter, $\overline{NQ}$, as shown below.



[not drawn to scale]

The radius $\overline{KP}$ is 3 inches. What is the length of $\overline{NQ}$?

F 3 inches

G 4 inches

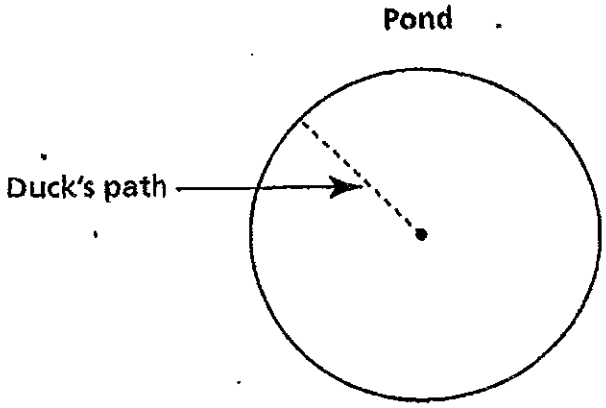
H 6 inches

J 9 inches

Circles

Student Worksheet

1. A duck swims from the edge of a circular pond to a fountain in the center of the pond. Its path is represented by the dotted line in the diagram below.



What term describes the duck's path?

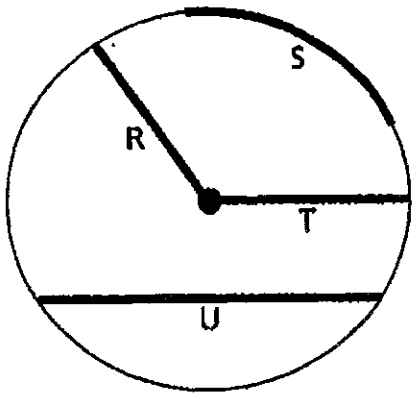
A chord

B radius

C diameter

D central angle

2. The circle below has four labeled parts.



Which part of the circle does segment U represent?

A arc

B chord

C diameter

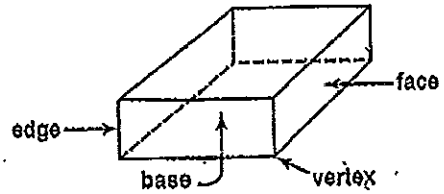
D radius

Name _____ Class _____ Date _____

Reteaching 9-7 Three-Dimensional Figures and Spacial Reasoning

Prisms and pyramids are three-dimensional figures. Their parts have special names.

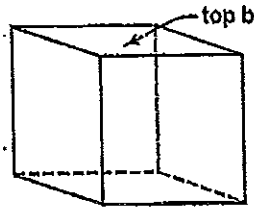
- *Faces*—flat surface on a prism or pyramid
- *Edge*—segment where two faces meet
- *Vertex*—point where edges meet



Prisms and pyramids can be named by the shape of their bases.

Prism

- has two *bases* congruent and parallel to one another

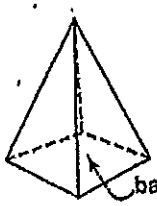


6 faces
12 edges
8 vertices

The bases are rectangles.
This prism is a *rectangular prism.*

Pyramid

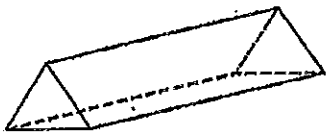
- has one base; other faces are triangles



5 faces
8 edges
5 vertices.

The base is a square.
This pyramid is a *square pyramid.*

Name each three-dimensional figure.

1. 

2.

3.

4.

5. How many faces, edges, and vertices does a pentagonal prism have?

_____

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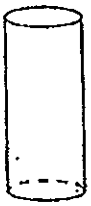
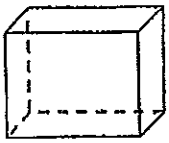
Name _____ Class _____ Date _____

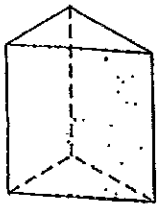
Practice 9-7

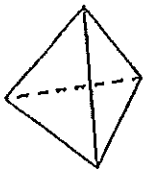
Three-Dimensional Figures and Spatial Reasoning

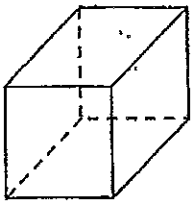
Name each three-dimensional figure.

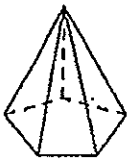
1. 

2. 

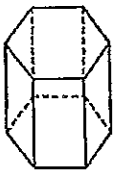
3. 

4. 

5. 

6. 

7.

8. 

9. In a square pyramid, what shape are the faces?

_____

10. How many faces does a rectangular prism have? How many edges? How many vertices?

_____

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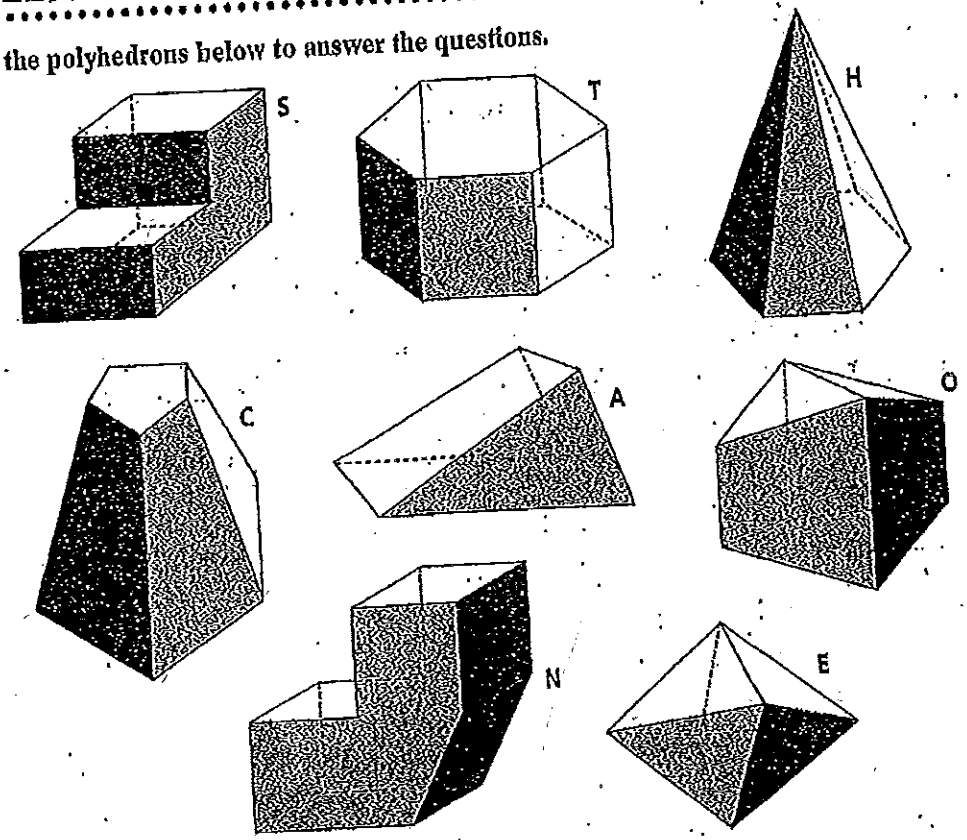
Name _____ Class _____ Date _____

Puzzle 9-7

Three-Dimensional Figures and Spatial Reasoning

Use the polyhedrons below to answer the questions.



1. A polyhedron with 15 edges. _____.
2. A polyhedron with four triangular faces and four trapezoidal faces. _____
3. A polyhedron with the same number of faces and vertices and with 12 edges. _____
4. A polyhedron with two hexagonal faces and six square faces. _____
5. A regular polyhedron. _____
6. A polyhedron with the same number of faces and vertices and with 14 edges. _____
7. The polyhedron with the greatest number of vertices. _____
8. The polyhedron with the least number of edges. _____
9. A polyhedron with 21 edges. _____
10. A pyramid with a hexagon for a base. _____
11. A polyhedron with 8 faces and 6 vertices. _____

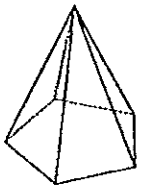
Math 6 - On

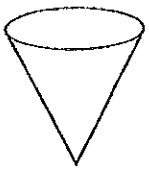
Name_____

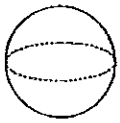
Three Dimensional Figures

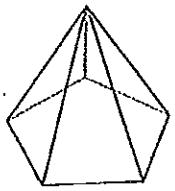
Date_____ Period____

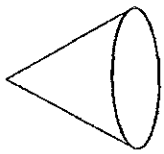
Name each figure.

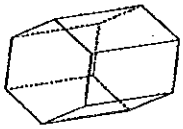
1) 

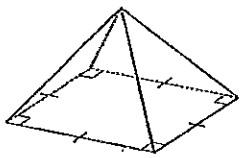
2) 

3) 

4) 

5) 

6) 

7) 

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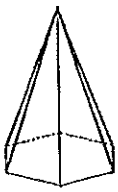
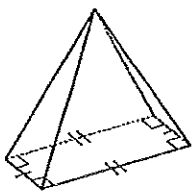
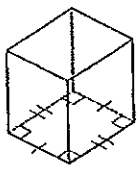
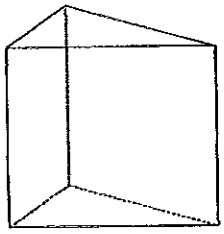
9) 

10) 

11) 

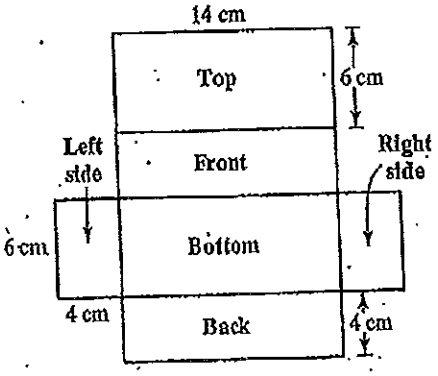
12) 

Name _____ Class _____ Date _____

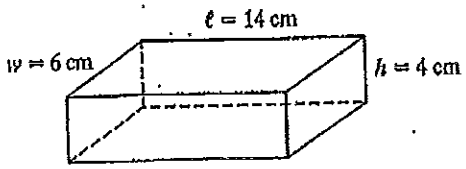
Reteaching 9-8

Surface Areas of Prisms

The *surface area* of a rectangular prism is the sum of the areas of the faces. You can use nets to find surface area.



Find the surface area of the prism.



area of top = area of bottom
area of front = area of back
area of right side = area of left side

① Find the area of the top.
$A = \ell \times w$
$= 14 \times 6$
$= 84 \text{ cm}^2$

② Find the area of the front.
$A = \ell \times h$
$= 14 \times 4$
$= 56 \text{ cm}^2$

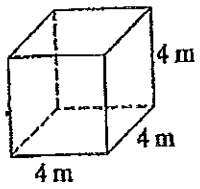
③ Find the area of the right side.
$A = w \times h$
$= 6 \times 4$
$= 24 \text{ cm}^2$

④ Add.
$84 + 84 + 56 + 56 + 24 + 24 = 328$

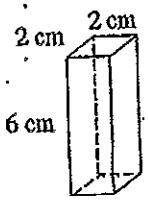
The surface area of the prism is 328 square centimeters.

Find the surface area of each prism.

1.



2.



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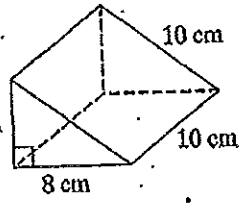

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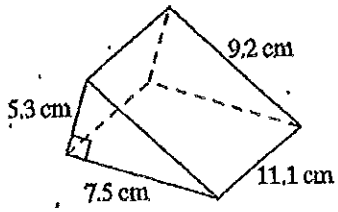

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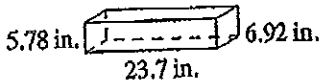

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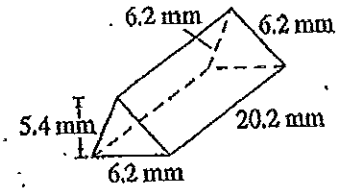

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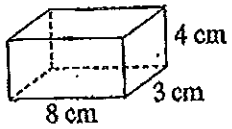
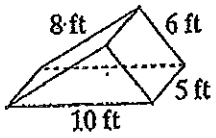
Name _____ Class _____ Date _____

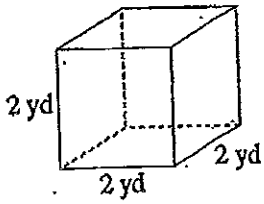
Practice 9-8

Surface Areas of Prisms

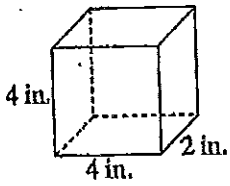
Draw a net for each prism.

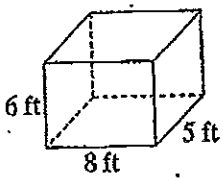
1. 

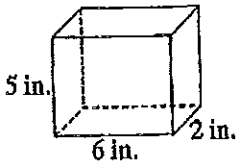
2. 

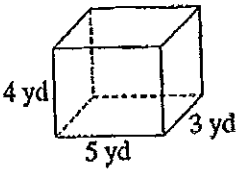
3. 

Find the surface area of each figure to the nearest whole number.

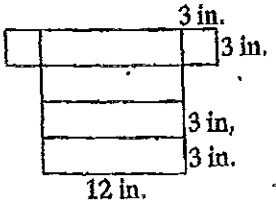
4. 

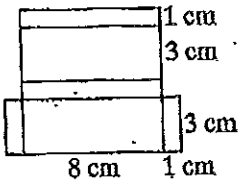
5. 

6. 

7. 

Find the surface area of the rectangular prism with the given net.

8. 

9. 

10. Jan is making a pencil holder out of plastic canvas. The pencil holder will be 4 inches high. It will not have a top. The perimeter of the square base is 17.64 inches. How much plastic canvas does Jan need?

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Grade 6 On

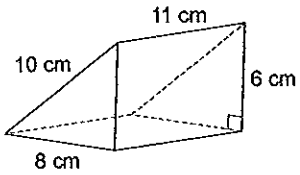
Name_____ ID: 1

Surface Area of Triangular Prisms

Date_____ Period____

Find the surface area of each figure. Round to the nearest tenth.

1)



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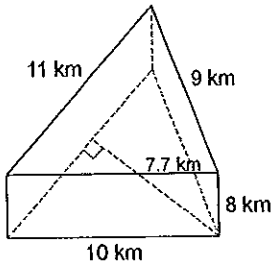

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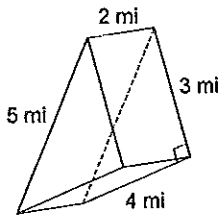

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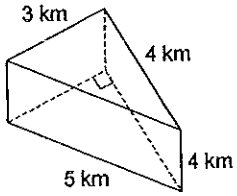


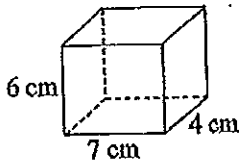
46

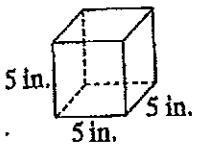
Name _____ Class _____ Date _____

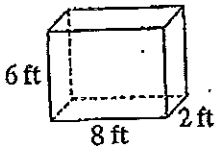
Practice 9-9

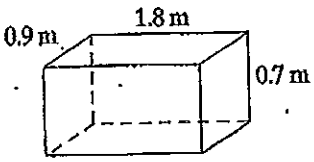
Volumes of Rectangular Prisms

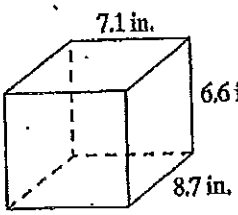
Find the volume of each rectangular prism.

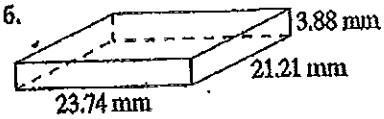
1. 

2. 

3. 

4. 

5. 

6. 

7. $\ell = 6$ cm, $w = 5$ cm, $h = 12$ cm

8. $\ell = 13$ in., $w = 7$ in., $h = 9$ in.

9. $\ell = 14$ m, $w = 13$ m, $h = 19$ m

10. $\ell = 44$ cm, $w = 27$ cm, $h = 89$ cm

11. $\ell = 2.5$ ft, $w = 1.9$ ft, $h = 11.6$ ft

12. $\ell = 48.1$ m, $w = 51.62$ m, $h = 3.42$ m

13. A packing box is 1.2 m long, 0.8 m wide, and 1.4 m high. What is the volume of the box?

14. A fish aquarium measures 3 feet long, 2 feet wide, and 2 feet high. What is the volume of the aquarium?

15. A swimming pool is 25 feet wide, 60 feet long, and 7 feet deep. What is the volume of the pool?

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Name _____ Class _____ Date _____

Puzzle 9-9

Volumes of Rectangular Prisms

1. A clay company makes large blocks of clay with dimensions of length = 12 ft, width = 6 ft, and height = 8 ft. Each large block weighs 1,152 lb. They want to purchase a new cutting machine so that they can produce small blocks of clay. They want each of the small blocks to weigh 12 lb. Use the facts below to fill in the chart and help them choose the best machine for the job.

   The first machine cuts each dimension of a rectangle exactly into fourths.

   The second machine cuts the longest dimension into sixths and the other two dimensions into fourths.

   The third machine cuts the shortest dimension into fourths and the other two dimensions into sixths.

	Length of Small Block	Width of Small Block	Height of Small Block	Volume of Small Block	Weight of Small Block	Choose this Machine?
Machine 1						
Machine 2						
Machine 3						

2. The company would also like to purchase a box truck to transport the small blocks to retail stores. They need to choose a truck that will fit through their cargo door which is 8.5 ft wide and 7.5 ft tall. The wheels of each truck raise the cargo area of a truck 2 ft above the ground. Use the facts below to fill in the chart and help the clay company decide which truck to choose.

   The cargo area of the first truck is 8 ft long, 6 ft wide, and has a volume 288 ft^3.

   The second truck has a cargo area that is 5 ft wide, 6 ft long, and has a volume 210 ft^3.

   The cargo area of the third truck is 6 ft wide, 8 ft long, and has a volume 240 ft^3.

	Volume of Cargo Area	Width of Cargo Area	Length of Cargo Area	Height of Cargo Area	Total Height of Truck	Choose this Truck?
Truck 1						
Truck 2						
Truck 3						

Math 6 - On

Name_____

Surface Area and Volume

Date_____ Period____

Sketch the net of each solid. Label the measurements given.

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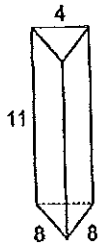

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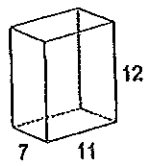

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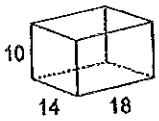

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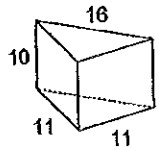

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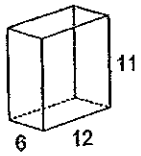

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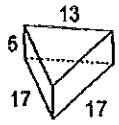

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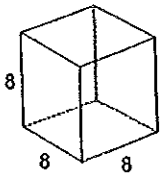

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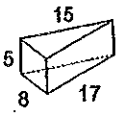

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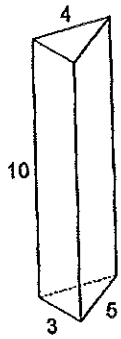

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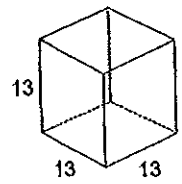
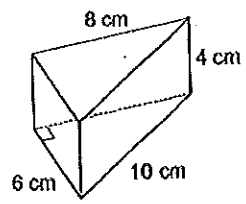


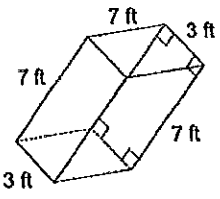
Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

11)



A) 144 cm² B) 120 cm²
C) 179 cm² D) 183 cm²

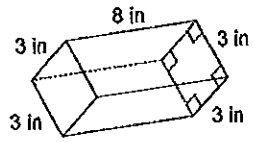
12)



A) 95 ft² B) 182 ft²
C) 162 ft² D) 161 ft²

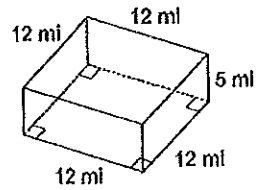
57

13)



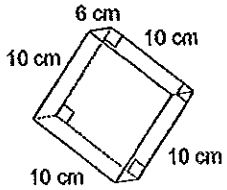
A) 114 in² B) 160 in²
C) 105 in² D) 76 in²

14)



A) 336 mi² B) 528 mi²
C) 542 mi² D) 384 mi²

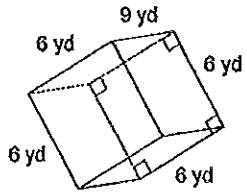
15)



A) 440 cm² B) 374 cm²
C) 345 cm² D) 340 cm²

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

16)



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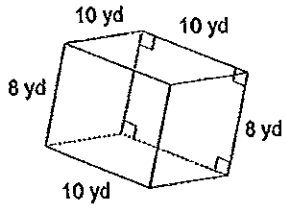

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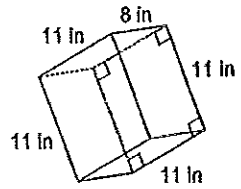

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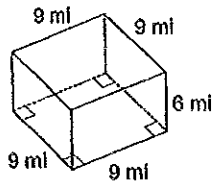

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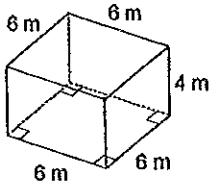

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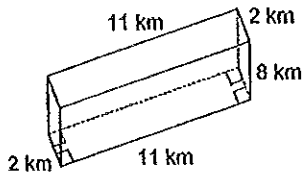

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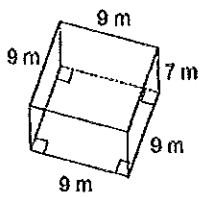

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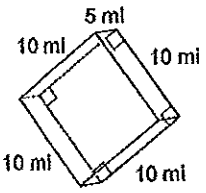
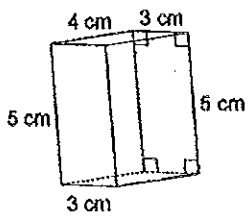
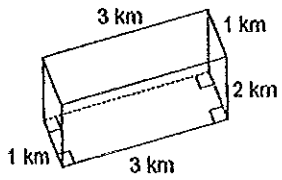


24)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