Name _____ Date _____

LESSON 1.7

Study Guide

For use with pages 48–56

GOAL **Find dimensions of polygons.**

Vocabulary

Formulas for the perimeter P, area A, and circumference C of some common plane figures are given below.

Square

side length s

$P = 4s$

$A = s^2$

Rectangle

length ℓ and width w

$P = 2\ell + 2w$

$A = \ell w$

Triangle

side lengths a, b, and c,

base b, and height h

$P = a + b + c$

$A = \frac{1}{2}bh$

Circle

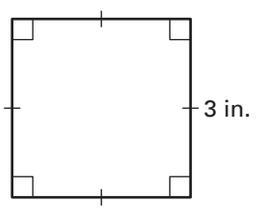
diameter d and radius r

$C = \pi d = 2\pi r$

$A = \pi r^2$

EXAMPLE 1 ## Find the perimeter and area of a square

Find the perimeter and area of the square shown at the right.



Solution

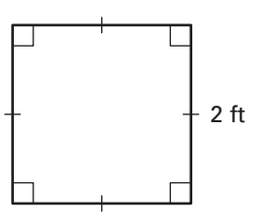
Perimeter	**Area**
$P = 4s$	$A = s^2$
$= 4(3)$	$= (3)^2$
$= 12$	$= 9$

The perimeter is 12 inches and the area is 9 square inches.

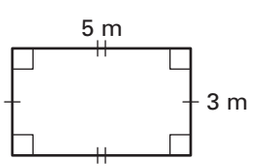
Exercises for Example 1

Find the perimeter and area of the figure. If necessary, round to the nearest tenth.

1.



2.



Name _____ Date _____

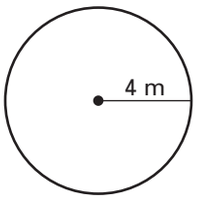
LESSON 1.7

Study Guide *continued*

For use with pages 48–56

EXAMPLE 2 Find the circumference and area of a circle

Find the circumference and area of the circle shown at the right.



Solution

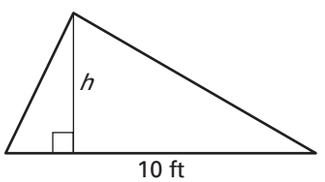
Use 3.14 to approximate the value of π.

Circumference	**Area**
$C = 2\pi r$	$A = \pi r^2$
$\approx 2(3.14)(4)$	$\approx 3.14(4)^2$
$= 25.12$	$= 50.24$

The circumference is about 25.1 meters and the area is about 50.2 square meters.

EXAMPLE 3 Find unknown length

The base of a triangle is 10 feet. Its area is 30 square feet. Find the height of the triangle.



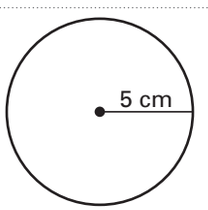
Solution

$A = \frac{1}{2}bh$	Write formula for the area of a triangle.
$30 = \frac{1}{2}(10)h$	Substitute 30 for A and 10 for b.
$6 = h$	Solve for h.

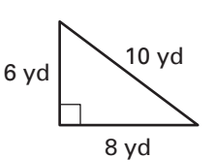
The height is 6 feet.

Exercises for Examples 2 and 3

3. Find the circumference and area of the circle. If necessary, round to the nearest tenth.



4. Find the perimeter and area of the triangle.



5. The base of a triangle is 12 meters. Its area is 42 square meters. Find the height of the triangle.