

# Warm-up:

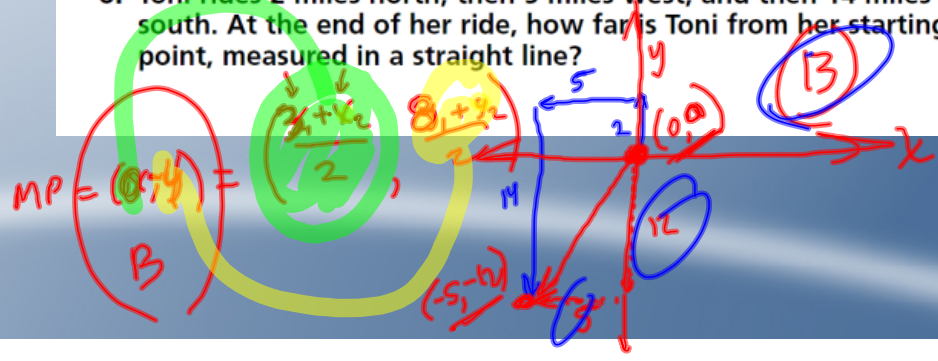


A has coordinates (3, 8).  
 B has coordinates (0, -4).  
 C has coordinates (-5, -6).

1. Find the distance between A and B to the nearest tenth. *12.4*
2. Find BC to the nearest tenth. *5.4*
3. Find the midpoint M of  $\overline{AC}$  to the nearest tenth. *(-1, 1)*
4. B is the midpoint of  $\overline{AD}$ . Find the coordinates of endpoint D. *(-3, -16)*
5. An airplane flies from Stanton to Mercury in a straight flight path. Mercury is 300 miles east and 400 miles south of Stanton. How many miles is the flight? *500*
6. Toni rides 2 miles north, then 5 miles west, and then 14 miles south. At the end of her ride, how far is Toni from her starting point, measured in a straight line? *13*

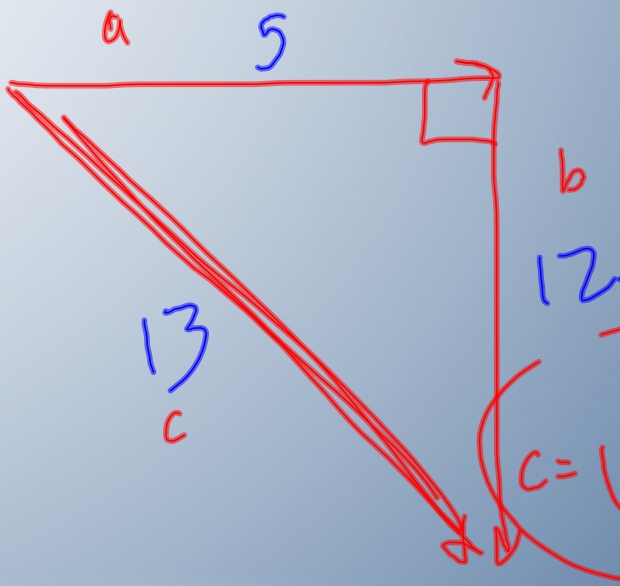
$$\frac{3+(-5)}{2} = -1$$

$$\frac{8+(-6)}{2} = 1$$



$$a^2 + b^2 = c^2$$

Pythagorean Theorem



Pythagorean  
 triples  
 3, 4, 5  
 5, 12, 13

$$c = \sqrt{300^2 + 400^2}$$

3.1415926

Use inductive reasoning to form a conjecture about the following 2 sets of figures:

Yes

*Polygons*

*Closed - NO GAPS*  
*Don't cross only intersect at endpoints*  
*Line segments*

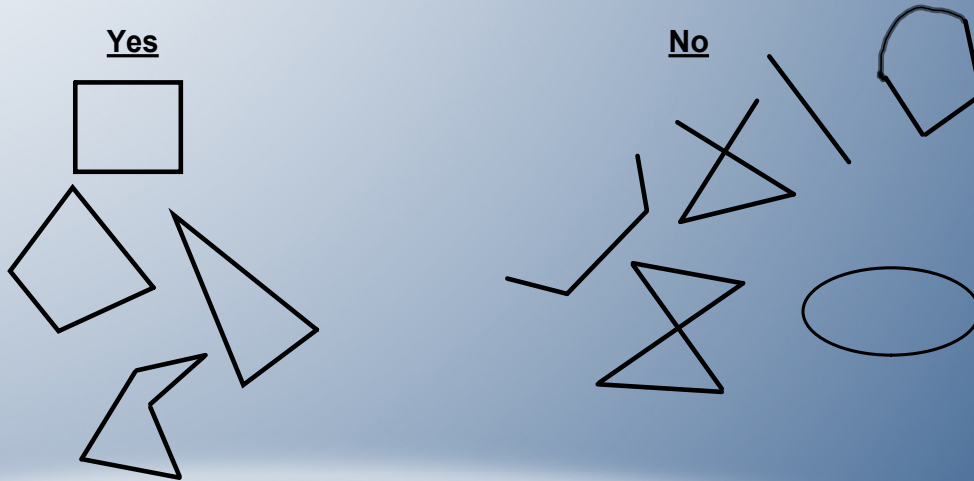
No

A

B

## **Polygon**

A **closed** geometric figure formed by connecting **line segments endpt to endpt**, each seg intersecting exactly 2 others.



**What do you have, if in a plane**

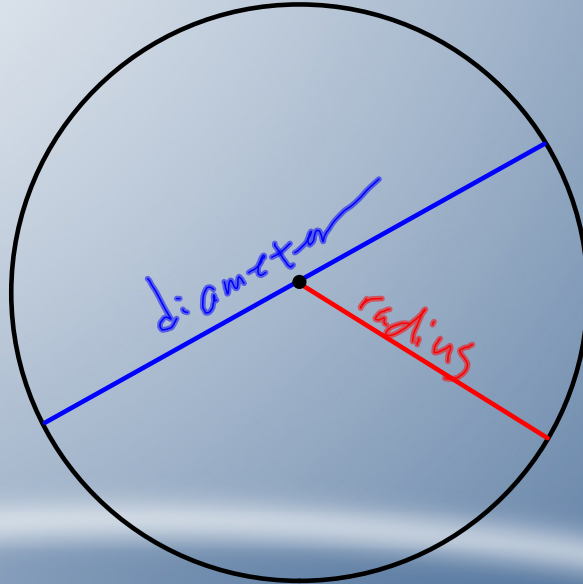
**you take a pt and**

**all other points equidistant from that pt?**

↓ ↓  
equal distance

## Circle

Set of all pts in a plane equidistant from a given point.



What does  $\pi$  mean?  
Ratio of circumference  
to diameter.

$$\pi = \frac{C}{d}$$

$$C = \pi d$$

## Perimeter

Sum of the len of each side.

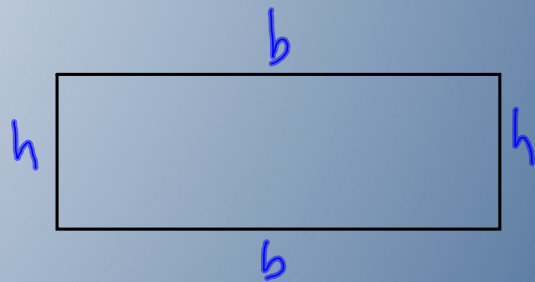
Sum len ea side

Perim  $P$  of a square w/side len  $s$ :

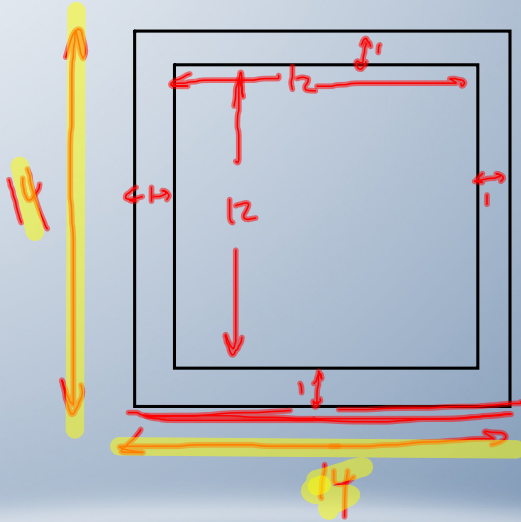
$$P = 4s$$

Perim  $P$  of a rectangle w/base  $b$ , height  $h$ :

$$P = 2b + 2h$$



- 1 Margaret's garden is a square  $12\text{ft}$  on each side. She wants a  $1\text{ft}$  wide path **around** the entire garden. What will the outside perimeter of the path be?



Draw a picture!!!  
Label it!!!

What do we call "perimeter" for circles?



## Circumference

"Perimeter" for a circle.

Circumference  $C$  of a circle of diameter  $d$  is:

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


 Questions

 Next

1

$$\begin{aligned} C &= 2\pi r \\ &= 2\pi(6.5) \\ &= 13\pi \end{aligned}$$

- 2)  $\odot G$  has a radius of 6.5cm.  
Find the circumference of  $\odot G$  in terms of  $\pi$ :

circumference of  $\odot G = d\pi$

$$d = 2r = 2(6.5) = 13$$

answer in terms of  $\pi$   
 $13\pi$

- 3) Now find the circumference of  $\odot G$  to the nearest tenth.

$$13\pi = 13 \cdot 3.1415926 = 40.8407045 = 40.8$$

use your calculator

back

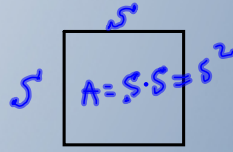
2

## Area

Measure of how much surface space a shape takes up.

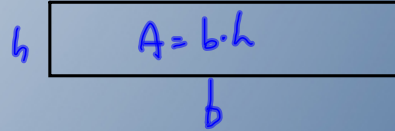
Area  $A$  of a square w/side len  $s$ :

$$A = s^2$$



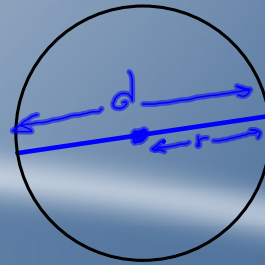
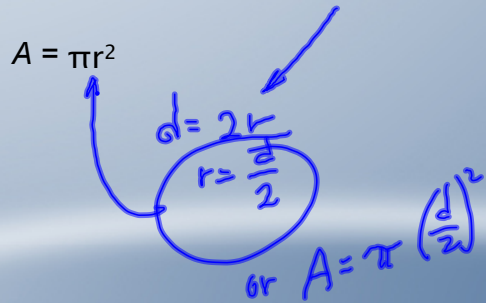
Area  $A$  of a rectangle w/base  $b$  and height  $h$ :

$$A = bh$$



Area  $A$  of a circle of diameter  $d$  is:

$$A = \pi r^2$$



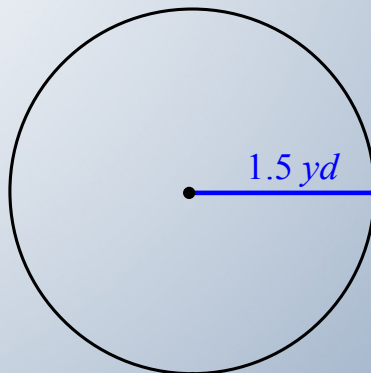


- 1 To make a project you need a rectangular piece of fabric 36' wide & 4' long.  
How many square feet of fabric do you need?

3'

$$3 \times 4 = 12$$

- 2 area of  $\odot B = \frac{r^2}{2} \pi$ .

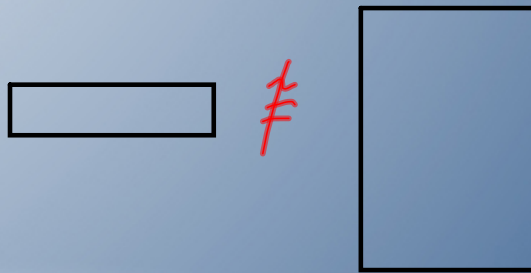
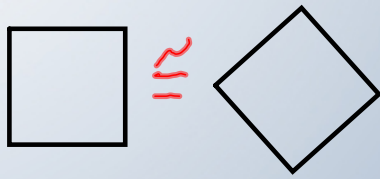


$$2.25 \pi$$

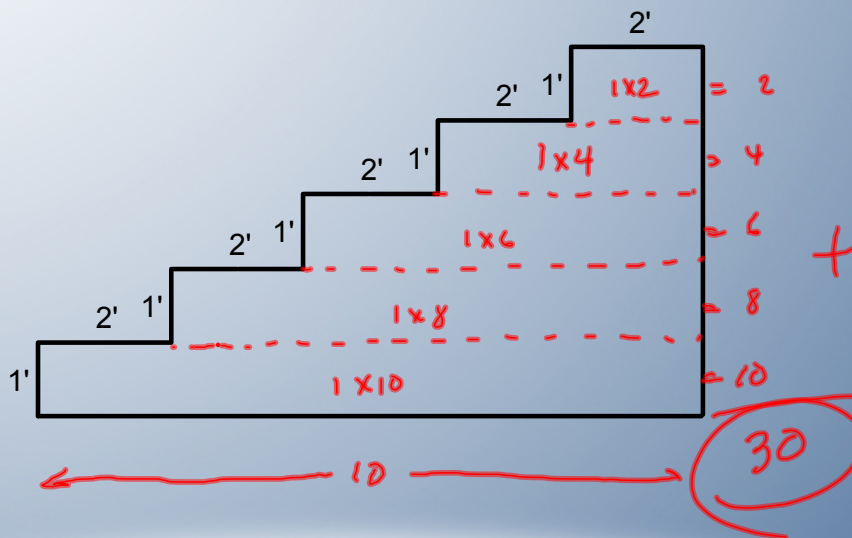
answer in terms of  $\pi$

**Postulate 1-9**

Two figures are congruent if their areas are equal.



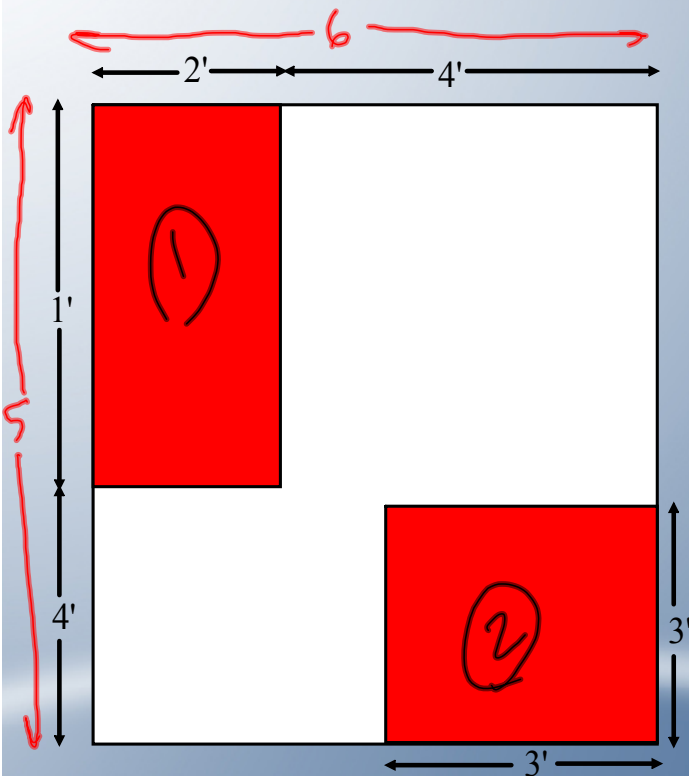
**2** What is the area of this polygon?



**Postulate 1-10**

The area of a region is the sum of the areas of **non-overlapping** parts.

- 3** Find the area of the white region.  
All  $\angle$ 's are rt  $\angle$ 's. Not drawn to scale.



$$A_{\text{BIG}} - A_{\text{①}} - A_{\text{②}} = A_{\text{white}}$$

$5 \times 6 - 2 \times 1 - 3 \times 3 = 19 \text{ ft}^2$

## L1.7 HW Problems

Pg 55, #1-41 odd, 50, 54-57, 61, 68, 69, 72