

Name: _____

Date: Feb 19

Hour: ___ Alg 1 ___

Unit 6 Day 2: Using Pi

Focus Question: How do I find the area of a circle?

A. Exact answers vs Approximate answers

Use the table at the right to answer the following questions

1. Answers are exact when....

Not rounded: can contain (or be)
an irrational #

2. Answers are approximate when....

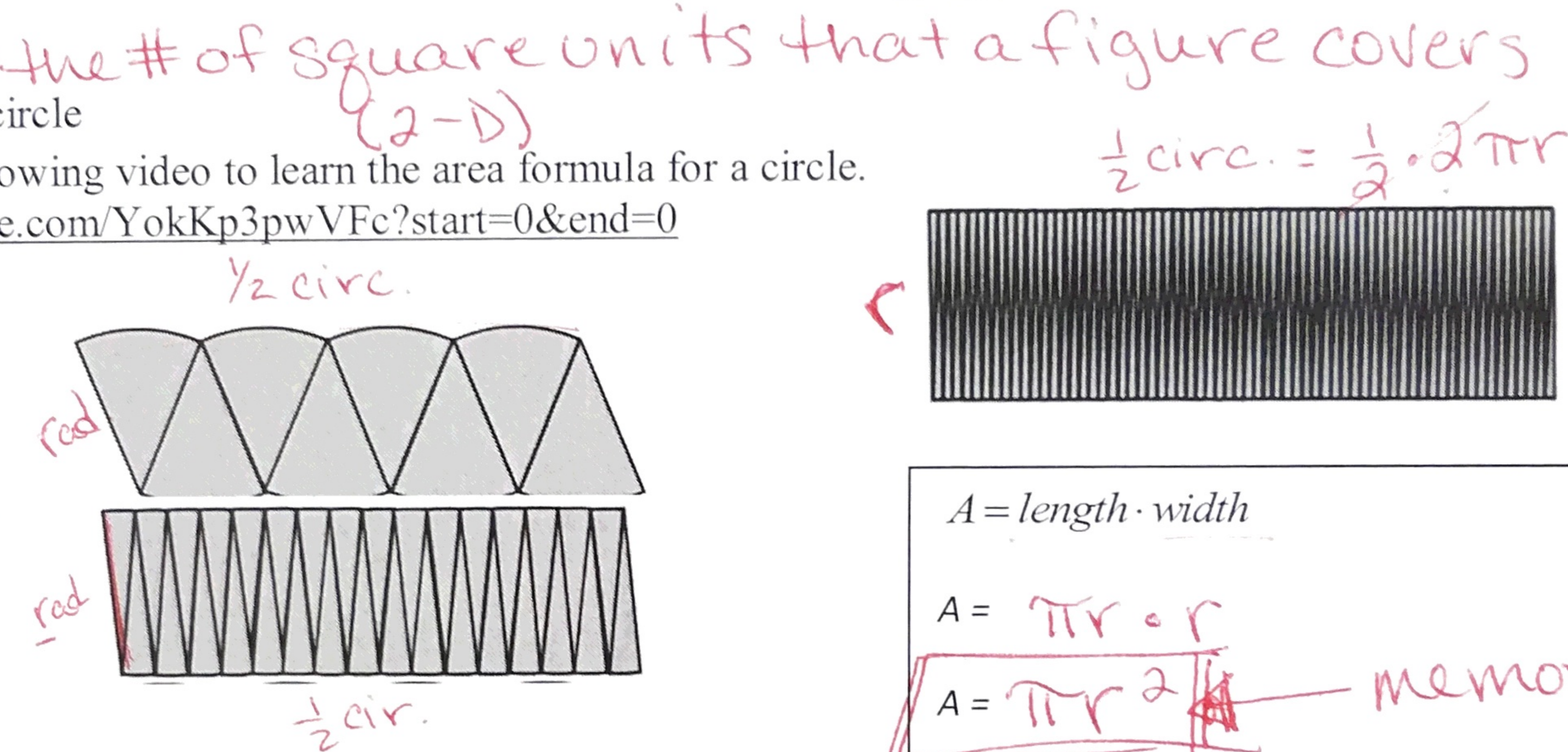
they are rounded

Exact	Approximate
45π	141.37
$\frac{3\pi}{2}$	4.7
6.25	6
4π	12.5664
$2\sqrt{5}$	4.472
7	10

B. The area of a circle

Watch the following video to learn the area formula for a circle.

<http://viewpure.com/YokKp3pwVFc?start=0&end=0>



$$C = 2\pi r$$

$$A = \text{length} \cdot \text{width}$$

$$A = \pi r \cdot r$$

$$A = \pi r^2$$

memorize

C. Using the formulas related to a circle:

For each problem, find the exact answer. Then give an approximate answer to the nearest hundredth (2 dec.) Remember to use the pi key for approximate answers unless the problem says otherwise.

1. Find the area of a circular window with a diameter of 36 inches.

$$A = \pi r^2$$

$$A = \pi (18)^2$$

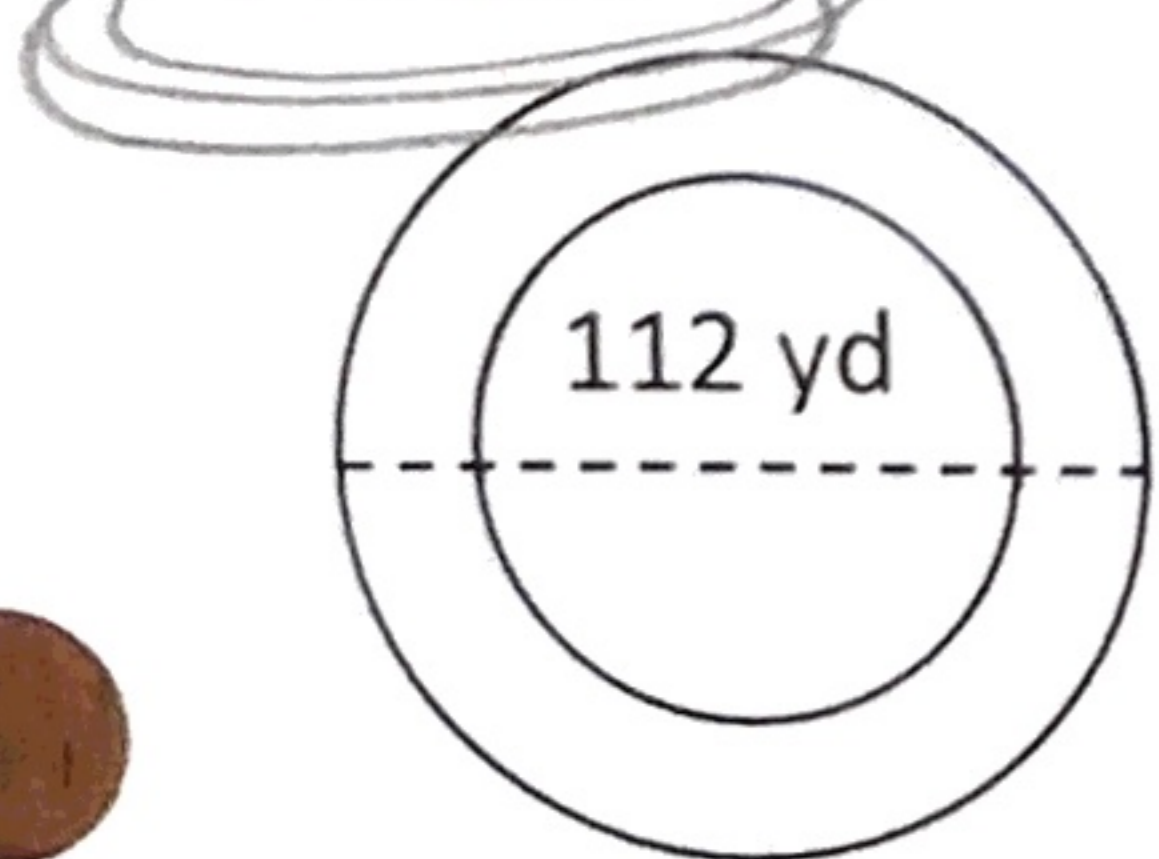
$$A = 324\pi$$

$$r = \frac{36}{2}$$

$$r = 18$$

Exact:	$324\pi \text{ in}^2$
Approximate:	1017.88 in^2

2. A circular track is shown below. What is the distance traveled if you jog around the outside of the track twice?



$$C = \pi d \cdot 2$$

$$C = \pi (112) \cdot 2$$

$$C = 224\pi$$

Exact:	$224\pi \text{ yd}$
Approximate:	703.72 yd

circles

3. If the tires on a car each have a diameter of 25 inches, how far will the car travel in 100 rotations of its tires?

$$C = \pi d \cdot 100$$

$$C = \pi(25) \cdot 100$$

$$C = 2500\pi$$

Exact: 2500π in

Approximate: 7853.98 in

4. Jayne has a very large circular lollipop that has a diameter of 8 inches. What would the area of Jayne's lollipop be?

$$A = \pi r^2$$

$$A = \pi(4)^2$$

$$A = 16\pi$$

$$r = \frac{8}{2}$$

$$r = 4$$

Exact: 16π in²

Approximate: 50.27 in²

5. Find the radius of a circle with an area of 113.04 square kilometers. (Use 3.14 for π)

$$A = \pi r^2$$

$$\frac{113.04}{3.14} \approx \frac{3.14 \cdot r^2}{3.14}$$

$$\sqrt{36} \approx \sqrt{r^2}$$

$$r \approx \pm 6$$

Approximate: 6 km

6. Shawna is running for student council president. She wants to make circular buttons to pass out to all of her friends. The button will have an area of $64\pi \text{ cm}^2$. If she wants to put a border around the button, how long will the border be for each button?

$$C = 2\pi r$$

$$C = 2\pi(8)$$

$$C = 16\pi$$

$$A = \pi r^2$$

$$64\pi = \pi r^2$$

$$\sqrt{64} = \sqrt{r^2}$$

$$\pm 8 = r$$

dist. can't be neg.

USE

to find r

then subst. to find C

$$\text{so } r = 8$$

Exact: 16π cm

Approximate: 50.27 cm