Finding the Circumference of a Circle

Show these 2 at the beginning of class:

Math Bites

https://www.youtube.com/watch?v=8-cazxAL_tU

What is Pi?

https://www.youtube.com/watch?v=7Mz7xU3zZvk

Show these 2 at the end of class:

Another Pi Song:

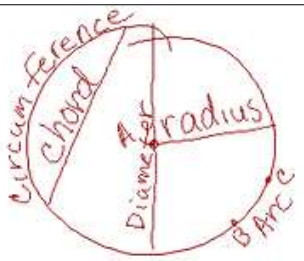
https://www.youtube.com/watch?v=QTeulglcX1M

The Pi Song

https://www.youtube.com/watch?v=VWGGTb5pY2U

Turn to pg. 602/ 603.
Add Skills Practice 12.2.

Pg: 602



Problem 3 Circumference Formula

The number **pi** (π) is the ratio of the circumference of a circle to its diameter. That is, $pi = \frac{circumference\ of\ a\ circle}{diameter\ of\ a\ circle}$ or $\pi = \frac{C}{d}$, where C is the circumference of the circle, and d is the diameter of the circle. The number π has an infinite number of decimal digits that never repeat. Some approximations used for the exact value π are 3.14 and $\frac{22}{7}$.

Circle A

$\overset{\frown}{BC}$

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

1. Use this information to write a formula for the circumference of a circle, where d represents the diameter of a circle and C represents the circumference of a circle.

$C = \pi d$

2. Rewrite the formula for the circumference of a circle, where r represents the radius of a circle and C represents the circumference of a circle.

$C \cong \pi r 2$ OR $C = 2\pi r$

3. The diameter of a circle is 4.5 centimeters. Compute the circumference of the circle using the circumference formula. Let $\pi = 3.14$.

$C \cong \pi d$

$C \cong 3.14\,(4.5)$

$C \cong 14.13$ cm

4. The radius of a circle is 6 inches. Compute the circumference of the circle using the circumference formula. Let $\pi = 3.14$.

$C = \pi 2r$

$C = 3.14(2)6$

$C = 37.68$ in.

5. The circumference of a circle is 65.94 feet. Compute the diameter of the circle using the circumference formula. Let $\pi = 3.14$.

$\frac{65.94}{3.14} = \frac{3.14d}{3.14}$

$d = 21$ ft.

6. The circumference of a circle is 109.9 millimeters. Compute the radius of the circle using the circumference formula. Let $\pi = 3.14$.

$109.9 = 3.14(2)r$ $r = 17.5\ mm$

$\frac{109.9}{6.28} = \frac{6.28r}{6.28}$

7. What is the minimum amount of information needed to compute the circumference of a circle?

$C = \pi$

Have to have at least a radius.

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Be prepared to share your solutions and methods.

Where Does the Formula Come From?

Finding the Area of a Circle

What Is the Circumference of a Circle?

The Circle Song

Pg. 616

Problem 1 Fencing

A friend gave you 120 feet of fencing. You decide to fence in a portion of the backyard for your dog. You want to maximize the amount of fenced land.

Draw a diagram, label the dimensions, and compute the maximum fenced area.

Assume the fence is free-standing and you are not using any existing structure.

r

$\frac{1}{2}C$

$C = 120$ ft

$A = \frac{1}{2} C r$

$A = \frac{1}{2}(120) r$

$\frac{1}{2} \pi d r$

$A = \pi r r$

$A = 3.14 (35.03)(35.03)$

$A = 3853.1$ ft^2

$120 = \pi d$

$110 = \pi r$

$110 = 3.14 r$

$3.14 \quad 3.14$

$35.03 = r$

$C = 120$ ft $\leftarrow$ 35.03 ft $\rightarrow A = 3853.1$ ft^2

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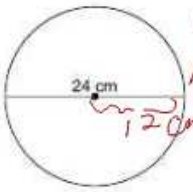
Pre-Algebra Name_____ ID: 1

Area of Circles

Date_____ Period____

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

1) $A \approx \pi r^2$
$A \approx 3.14(12)(12)$
$A \approx 452.2 \text{ cm}^2$



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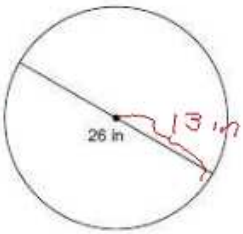

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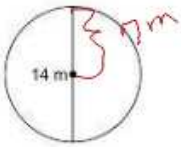
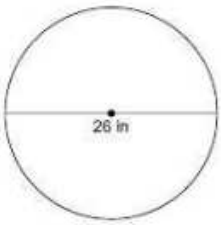
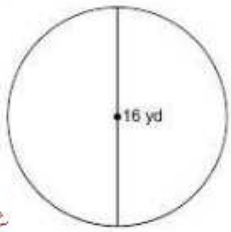


4)

5)



6)



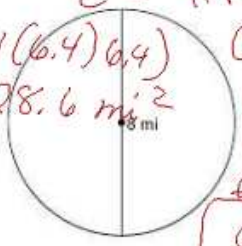
$3.14 = \frac{40.2}{d}$

7) circumference = 40.2 mi

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

8) circumference = 29.5 cm

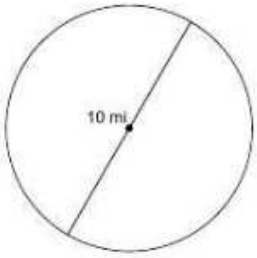
9)



$A = 3.14(6.4)(6.4)$
$A \approx 128.6 \text{ mi}^2$

$C \approx 3.14(2)r$
$C \approx 6.28r$
$\frac{40.2}{6.28} \approx \frac{6.28r}{6.28}$
$6.4 = r$

10)



11) $A = \pi r^2$
$A \approx \pi r r$
$A \approx 3.14(14)14$
$A \approx 615.4 \text{ cm}^2$

12)

13) diameter = 16 in

14) diameter = 20 yd

15) circumference = 42.7 in

16) circumference = 75.4 in

Answers to Area of Circles (ID: 1)

1) 452.4 cm^2
2) 530.9 in^2
3) 153.9 m^2
4) 158.4 yd^2
5) 530.9 in^2
6) 201.1 yd^2
7) 128.6 mi^2
8) 69.3 cm^2
9) 50.3 mi^2
10) 78.5 mi^2
11) 615.8 cm^2
12) 530.9 yd^2
13) 201.1 in^2
14) 314.2 yd^2
15) 145.1 in^2
16) 452.4 in^2