

CODE RED – DO NOW

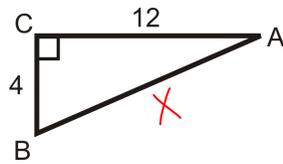
Complete Problems #1-3

1. Write the inverse of the following statement:

“If the weather is bad, then we will not walk to school.”

“If the weather is **GOOD**, then we will walk to school.”

2. Find the length of the missing side of the right triangle.



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

$$x^2 = 12^2 + 4^2$$

$$x^2 = 144 + 16$$

$$\sqrt{x^2} = \sqrt{160}$$

$$x = 12.6$$

3. What is the length of \overline{AB} , given A (-2,3) and B (4, -5)?

$$d = \sqrt{(-2-4)^2 + (3-(-5))^2} = 10$$



Intro to Circles

SOL G.11

Learning Target: By the end of class today, I will be able to label parts of a circle, and solve to find the area and circumference, as evidenced by completing the class exit ticket with at least 75% (3 out of 4 questions) accuracy.

Essential Questions:

- How can line segments form angles both inside and outside of circles?
- How can intercepted arcs be used to show a relationship among angles, line segments and lines?

Today's Agenda

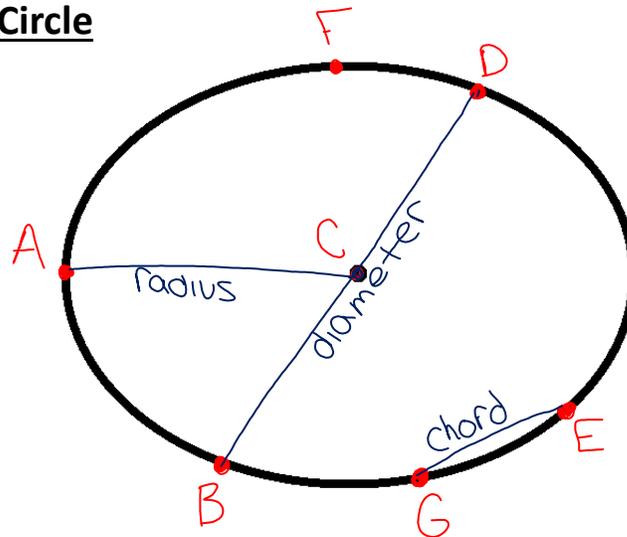


- ✓ DO NOW
- ✓ Parts of a Circle
- ✓ Area and Circumference
- ✓ Kahoot!
- ✓ Exit Ticket

CODE YELLOW

Parts of a Circle

Circle C



CODE YELLOW

Parts of a Circle

Center – the point in the middle of the circle (names the circle)

Radius – a segment from the center of the circle to any point on the outside ($diameter \div 2$)

Chord – a segment that connects any two points on a circle

Diameter – a chord that passes through the center of a circle ($radius \times 2$)

Area – the space inside the circle ($cm^2, in^2, etc.$)

Circumference – the distance around a circle ($cm, in, etc.$)

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Two Important Formulas:

Circumference Formula

The distance around the circle

$$(C = 2\pi r \text{ or } C = \pi d)$$

Area Formula

The space inside the circle

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

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What is π ?

3.141592654.

A magical number that we use with circles.

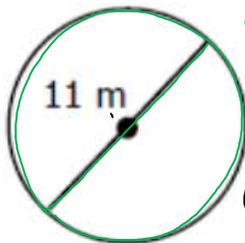
When multiplying with π , you never get a whole number, so you have to round **OR** leave in terms of π .

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Circumference Formula

$$(C = 2\pi r \text{ or } C = \pi d)$$

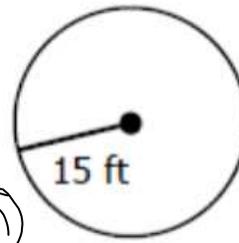
Find the circumference:



$$C = \pi d$$

$$C = 11\pi \text{ m}$$

$$C = 34.56 \text{ m}$$



$$C = 2\pi r$$

$$C = 2\pi 15$$

$$C = 30\pi \text{ ft}$$

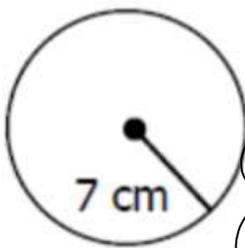
$$C = 94.2 \text{ ft}$$

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Area Formula

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

Find the area:

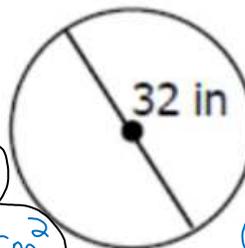


$$A = \pi r^2$$

$$A = \pi 7^2$$

$$A = 49\pi \text{ cm}^2$$

$$A = 153.9 \text{ cm}^2$$



$$A = \pi r^2$$

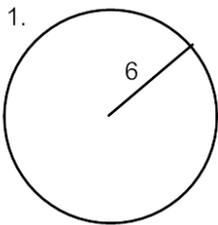
$$A = \pi 16^2$$

$$A = 256\pi \text{ in}^2$$

$$A = 804.2 \text{ in}^2$$

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Find the Area and Circumference for each circle.

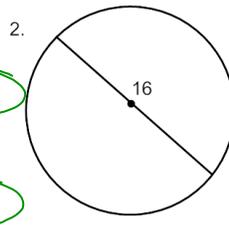


$$A = \pi r^2$$

$$A = 36\pi$$

$$C = 2\pi r$$

$$C = 12\pi$$

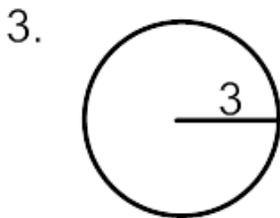


$$A = \pi r^2$$

$$A = 64\pi$$

$$C = \pi d$$

$$C = 16\pi$$

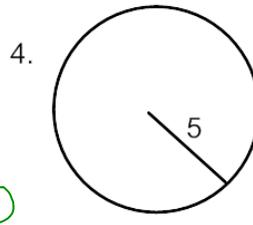


$$A = \pi r^2$$

$$A = 9\pi$$

$$C = 2\pi r$$

$$C = 6\pi$$



$$A = \pi r^2$$

$$A = 25\pi$$

$$C = 2\pi r$$

$$C = 10\pi$$

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We can also work backwards to find the radius and diameter...

1. Find the radius of a circle with a circumference of 81.68 cm.

$$C = 2\pi r$$

$$r = 13 \text{ cm}$$

$$\frac{81.68}{2\pi} = \frac{2\pi r}{2\pi}$$

2. Find the diameter of a circle with an area of 254.47 mm².

$$A = \pi r^2$$

$$\frac{254.47}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{r^2} = \sqrt{81}$$

$$r = 9$$

$$d = 18 \text{ mm}$$

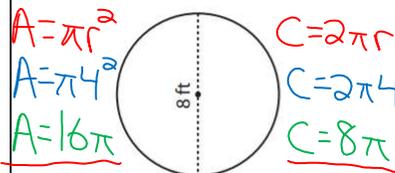
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Easy: S1

Area & Circumference

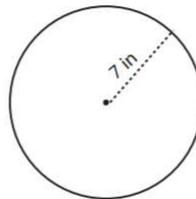
Find the exact area and circumference of each circle.

1)



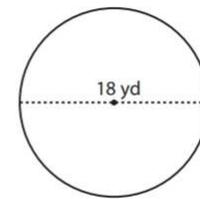
Radius = 4 ft
 Diameter = 8 ft
 Area = $16\pi \text{ ft}^2$
 Circumference = $8\pi \text{ ft}$

2)



Radius = 7 in
 Diameter = 14 in
 Area = $49\pi \text{ in}^2$
 Circumference = $14\pi \text{ in}$

3)



Radius = _____
 Diameter = _____
 Area = _____
 Circumference = _____

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Complete Problems #1-3

1. If I know the radius, how can I find the diameter?

Multiply by 2

2. What are the TWO formulas for CIRCUMFERENCE?

$$C = 2\pi r \text{ or } C = \pi d \quad \text{cm, in}$$

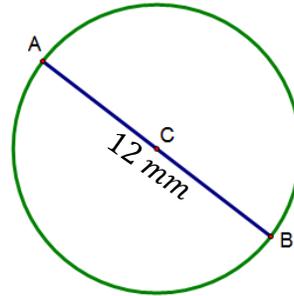
3. What is the formula for AREA?

$$A = \pi r^2 \quad \text{cm}^2, \text{ in}^2$$

4. For Circle C, find:

a) The CIRCUMFERENCE: **$12\pi \text{ mm}$**

b) The AREA: **$36\pi \text{ mm}^2$**

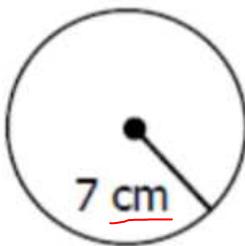


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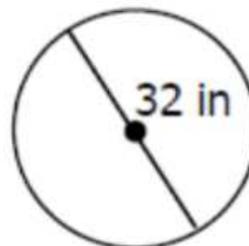
Circumference Formula

$$(C = 2\pi r \text{ or } C = \pi d)$$

Find the circumference:



$$\begin{aligned} C &= 2\pi r \\ C &= 2\pi 7 \text{ cm} \\ C &= 14\pi \text{ cm} \checkmark \\ C &= 44 \text{ cm} \checkmark \end{aligned}$$



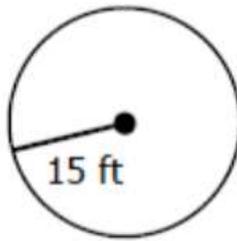
$$\begin{aligned} C &= \pi d \\ C &= \pi 32 \text{ in} \\ C &= 32\pi \text{ in} \checkmark \\ C &= 100.5 \text{ in} \checkmark \end{aligned}$$

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Area Formula

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

Find the area:



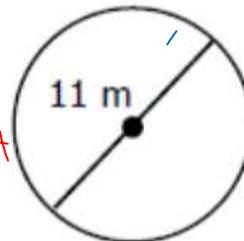
$$A = \pi r^2$$

$$A = \pi (15 \text{ ft})^2$$

$$A = \pi 15 \text{ ft} \cdot 15 \text{ ft}$$

$$A = 225 \pi \text{ ft}^2$$

$$A = 706.8 \text{ ft}^2$$



$$A = \pi r^2$$

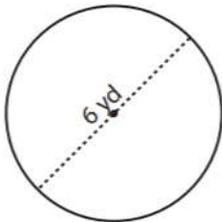
$$A = \pi (5.5 \text{ m})^2$$

$$A = 30.25 \pi \text{ m}^2$$

$$A = 95 \text{ m}^2$$

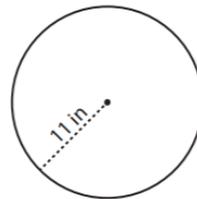
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Find the **CIRCUMFERENCE** for each circle.



$$C = 6\pi \text{ yd}$$

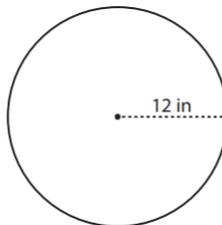
$$C = 18.8 \text{ yd}$$



$$C = 22\pi \text{ in}$$

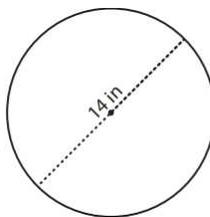
$$C = 69.1 \text{ in}$$

Find the **AREA** for each circle.



$$A = 144\pi \text{ in}^2$$

$$A = 452.4 \text{ in}^2$$



$$A = 49\pi \text{ in}^2$$

$$A = 153.9 \text{ in}^2$$

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We can also work backwards to find the radius and diameter...

1. Find the ^rradius of a circle with a ^Ccircumference of 106.8 in.

$$C = 2\pi r$$

$$r = 17 \text{ m}$$

$$\frac{106.8}{2\pi} = \frac{2\pi r}{2\pi}$$

2. Find the diameter of a circle with an area of 907.9 cm²

$$A = \pi r^2$$

$$\frac{907.9}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{r^2} = \sqrt{289}$$

$$r = 17 \text{ cm}$$

$$d = 34 \text{ cm}$$

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We can also work backwards to find the radius and diameter...

1. Find the ^Aarea of a circle with the ^Ccircumference of 16π m.

$$C = \pi d$$

$$d = 16$$

$$A = \pi r^2$$

$$\frac{16\pi}{\pi} = \frac{\pi d}{\pi}$$

$$r = 8$$

$$A = \pi 8^2$$

$$A = 64\pi \text{ m}^2$$

2. Find the circumference of a circle with an area of 16π m².

$$A = \pi r^2$$

$$\sqrt{r^2} = \sqrt{16}$$

$$C = 2\pi r$$

$$\frac{16\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$r = 4$$

$$C = 2\pi 4$$

$$C = 8\pi \text{ m}$$

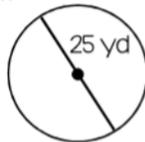
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Kahoot!

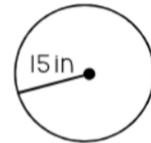
<https://create.kahoot.it/details/geometry-area-and-circumference-of-circles-math/23e7ee8c-50c1-45b0-b00f-52cf6a1627b1>

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1 Find the area of the circle below:



2 Find the circumference of the circle below:



3 Find the diameter of a circle with an area of 804.25 cm^2 .

4 Find the radius of a circle with a circumference of 28.27 km .

5 Find the area of a circle with a circumference of 50.27 ft

6 Find the circumference of a circle with an area of 95.03 m^2 .