

4-4-18

Aim: SWBAT calculate the radius or diameter given its circumference or area.

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Do Now: Packet Page 5

Homework - Finding Area and Circumference

Find the circumference and area of the circle using $C = 2\pi r$ or $C = \pi d$ and $A = \pi r^2$

Express your answers in each of the following forms:

- Step 1: State your answer in terms of π
- Step 2: State your answer using a scientific calculator showing 4 decimal places
- Step 3: Round your answer to the given place and include units.

1) Find the circumference and area of a circle with a radius of 5 cm.

| Circumference | Area |
|---|---|
| $C = 2\pi r$ $C = 2\pi \cdot 5$ $C = 10\pi$ | $A = \pi r^2$ $A = \pi \cdot 5^2$ $A = 25\pi$ |
| Answer in terms of π <u>10π cm</u> | Answer in terms of π <u>25π cm²</u> |
| Answer using π button <u>31.415926... cm</u> | Answer using π button <u>78.53981... cm²</u> |
| Rounded to the nearest hundredth <u>31.42 cm</u> | Rounded to the nearest tenth <u>78.5 cm²</u> |

2) Find the circumference and area of a circle with a diameter of 20 mm.

| Circumference | Area |
|---|---|
| $C = \pi d$ $C = \pi \cdot 20$ $C = 20\pi$ | $d = 20$ $r = 10$ $A = \pi r^2$ $A = \pi \cdot 10^2$ $A = 100\pi$ |
| Answer in terms of π <u>20π mm</u> | Answer in terms of π <u>100π mm²</u> |
| Answer using π button <u>62.831853... mm</u> | Answer using π button <u>314.159265... mm²</u> |
| Rounded to the nearest hundredth <u>62.83 mm</u> | Rounded to the nearest tenth <u>314.2 mm²</u> |

- 3) Find the circumference and area of a circle with a diameter of 7 in.

| Circumference | Area |
|--|--|
| $C = \pi d$ $C = \pi \cdot 7$ $C = 7\pi$ | $d = 7$ $r = 3.5$ $A = \pi r^2$ $A = \pi \cdot (3.5)^2$ $A = 12.25\pi$ |
| Answer in terms of π <u>7π in.</u> | Answer in terms of π <u>12.25π in.²</u> |
| Answer using π button <u>$21.991148\dots$ in.</u> | Answer using π button <u>$38.484510\dots$ in.²</u> |
| Rounded to the nearest hundredth <u>21.99 in.</u> | Rounded to the nearest tenth <u>38.5 in.²</u> |

- 4) Find the circumference and area of a circle with a radius of 20 m.

| Circumference | Area |
|---|---|
| $C = 2\pi r$ $C = 2 \cdot \pi \cdot 20$ $C = 40\pi$ | $A = \pi r^2$ $A = \pi \cdot 20^2$ $A = 400\pi$ |
| Answer in terms of π <u>40π m</u> | Answer in terms of π <u>400π m²</u> |
| Answer using π button <u>$125.663706\dots$ m</u> | Answer using π button <u>$1256.63706\dots$ m²</u> |
| Rounded to the nearest hundredth <u>125.66 m</u> | Rounded to the nearest tenth <u>1256.6 m²</u> |

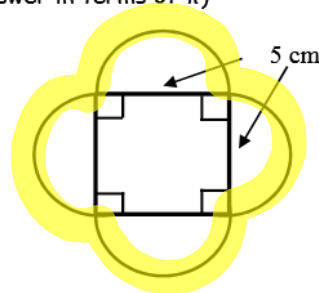
Aim: SWBAT calculate the radius or diameter of a circle given its circumference or area.

Do Now: Find the perimeter of the figure below (leave your answer in terms of π)

$$P = 2(\pi d)$$

$$P = 2(\pi \cdot 5)$$

$$P = 10\pi \text{ cm}$$



Notes.

Sometimes you are given the circumference or area of a circle and asked to find its radius or diameter. In these cases, you will need to remember your formulas for Circumference and Area of a circle and your equation solving skills.

$$C = \pi d$$

$$C = 2\pi r$$

$$A = \pi r^2$$

Use one of the formulas above to solve each of the following **ALGEBRAICALLY!**

- 1) Find the diameter of a circle whose circumference is 48π .

$$C = \pi d$$

$$\frac{48\pi}{\pi} = \frac{\pi d}{\pi}$$

$$48 = d$$

- 2) Find the radius of a circle whose circumference is 112π yd.

$$C = 2\pi r$$

$$\frac{112\pi}{2\pi} = \frac{2\pi r}{2\pi}$$

$$56 = r$$

- 3) Find the diameter of a circle whose circumference is 14.758 cm. Round your answer to the nearest tenth of a centimeter.

$$C = \pi d$$

$$\frac{14.758}{\pi} = \frac{\pi d}{\pi}$$

$$4.69761\dots = d$$

The diameter is about 4.7 cm.

- * 4) Find the radius of a circle whose area is $25\pi \text{ cm}^2$.

$$4.7 \approx d$$

$$A = \pi r^2$$

$$\frac{25\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{25} = \sqrt{r^2}$$

$$\pm 5 = r$$

reject -5

- 5) Find the **diameter** of a circle whose **area is 121π** .

$$A = \pi r^2$$

$$\frac{121\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{121} = \sqrt{r^2}$$

$$\pm 11 = r$$

reject -11

$$2 \cdot 11 = 22$$

- 6) Find the **radius** of a circle whose **area is 28.26 mm^2** . Round your answer to the nearest millimeter.

$$A = \pi r^2$$

$$\frac{28.26}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{8.995437\dots} = \sqrt{r^2}$$

The radius
is about 3mm.

$$\pm 2.999239\dots = r$$

reject $-2.999239\dots$

You Try!

- 7) Find the radius of a circle whose circumference is 11.932 cm. Round your answer to the nearest tenth of a centimeter.

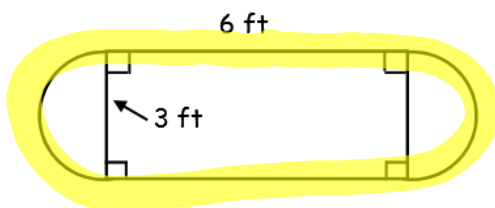
- 8) The St. Peter Basilica dome in Rome, Italy could cover a ground area of 1365 square meters. Find the diameter of the dome.

Homework - "Finding Radius and Diameter"

Directions. Use a formula to solve each of the following **ALGEBRAICALLY!** Round decimal answers to the nearest whole unit.

- 1) Find the diameter of a circle whose circumference is 66 in.
- 2) Find the radius of a circle whose circumference is 36π cm.
- 3) Find the radius of a circle whose circumference is 44m.
- 4) Find the radius of a circle whose area is 169π cm².
- 5) Find the diameter of a circle whose area is 4069.44 cm².
- *6) Find the area of a circle whose circumference is 18.84 ft.

- 7) Find the perimeter of the figure to the nearest foot.



- 8) Find the area of the shaded region to the nearest inch.

