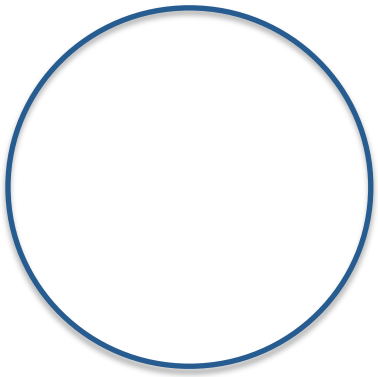
Calculating the Diameter and Radius

A circle has the circumference 12m. Calculate the diameter and radius of the circle.

- How would I illustrate what this problem is asking me to do?



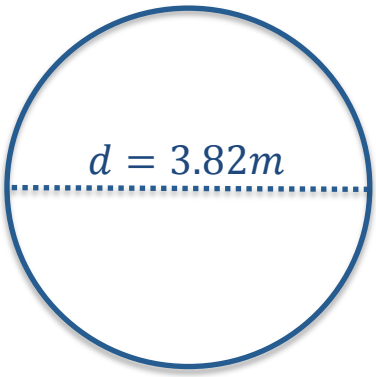
A student used the following solution to determine the distance of the diameter.

$$C = \pi \times d$$

$$12 = \pi \times d$$

$$\frac{12}{\pi} = \frac{\pi}{\pi} \times d$$

$$3.8197 \ldots = d$$



- How would I describe or explain the student's approach for solving this problem?

$$C = \pi \times d$$

$$12 = \pi \times d$$

- How would I explain and demonstrate the calculation that will isolate and solve for the variable *d*?

$$\frac{12}{\pi} = \frac{\pi}{\pi} \times d$$

- How does the student adjust their calculation to represent the diameter distance?

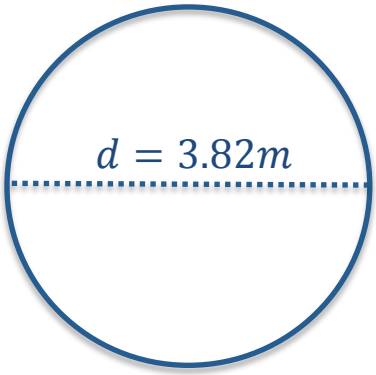
$$3.8197 \ldots = d$$

A classmate solved the same problem using a different equation.

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

$$d = \frac{12}{\pi}$$

$$3.8197 \ldots = d$$



- How might I explain the student's thinking in formulating the equation used for solving?

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

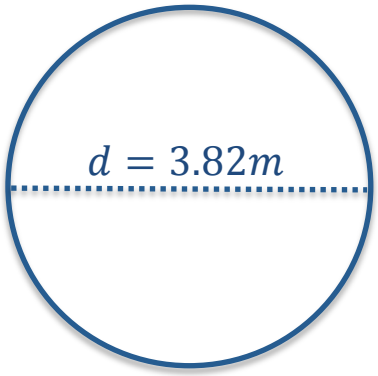
How would I describe the two solution approaches as being the same?

$$C = \pi \times d$$

$$12 = \pi \times d$$

$$\frac{12}{\pi} = \frac{\pi}{\pi} \times d$$

$$3.8197 \ldots = d$$



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

$$d = \frac{12}{\pi}$$

$$3.8197 \ldots = d$$

Why does dividing the circumference of a circle by pi allow me to calculate the circle's diameter?

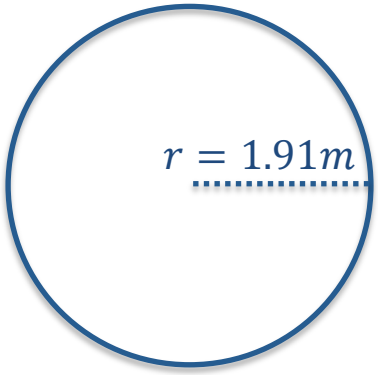
A student used their diameter solution to calculate the distance of the radius.

$$C = \pi \times d$$

$$12 = \pi \times d$$

$$\frac{12}{\pi} = \frac{\pi}{\pi} \times d$$

$$3.8197 \ldots = d$$



$$r = d \div 2$$

$$r = 3.8197 \ldots \div 2$$

$$r = 1.9099$$

- How would I explain the student's reasoning in setting up the solution using this approach?

$$r = d \div 2$$

- How would I explain and demonstrate the math being performed at this step of the solution?

$$r = d \div 2$$

$$r = 3.8197 \ldots \div 2$$

- How does the student adjust their calculation when representing the radius distance?

$$r = d \div 2$$

$$r = 3.8197 \ldots \div 2$$

$$r = 1.9099$$

Calculating the Diameter and Radius - Skills Checklist

- ☑ I can illustrate the following distances on a circle... circumference, radius & diameter
- ☑ I can explain how the radius and diameter of a circle compare in length
- ☑ I can explain and demonstrate how I use the equation $C = \pi \times d$ to calculate the distance of a diameter and radius
- ☑ I can explain and demonstrate how I use the equation $d = \frac{C}{\pi}$ to calculate the distance of a diameter and radius
- ☑ I can explain why dividing the circumference of a circle by pi will calculate the diameter of the circle

Calculating the Diameter and Radius - Worksheet