

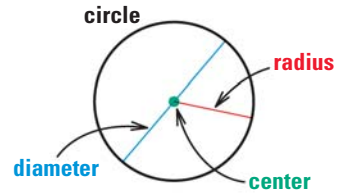
Circumference and Area of a Circle



A circle consists of all points in a plane that are the same distance from a fixed point called the **center**.

The distance between the center and any point on the circle is the **radius**. The distance across the circle through the center is the **diameter**. The diameter of a circle is twice its radius.

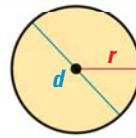
The **circumference** of a circle is the distance around the circle. For any circle, the ratio of its circumference to its diameter is π (pi), a number that is approximately equal to 3.14 or $\frac{22}{7}$.



Circumference and Area of a Circle

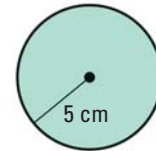
To find the circumference C of a circle with radius r or diameter d , use the formula $C = 2\pi r$ or $C = \pi d$.

To find the area A of a circle with radius r , use the formula $A = \pi r^2$.



EXAMPLE

Find the circumference and area of the circle. Give your answers in terms of π and as decimals rounded to the nearest tenth.



Circumference

$$\begin{aligned} C &= 2\pi r \\ &= 2\pi(5) \\ &= 10\pi \text{ cm} && \text{Exact answer} \\ &\approx 10(3.14) \\ &= 31.4 \text{ cm} && \text{Decimal approximation} \end{aligned}$$

Area

$$\begin{aligned} A &= \pi r^2 \\ &= \pi(5^2) \\ &= 25\pi \text{ cm}^2 && \text{Exact answer} \\ &\approx 25(3.14) \\ &= 78.5 \text{ cm}^2 && \text{Decimal approximation} \end{aligned}$$

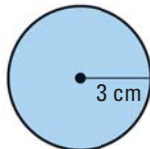
PRACTICE

Find the circumference and area of the circle. Give your answers in terms of π and as decimals rounded to the nearest tenth.

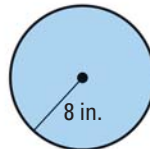
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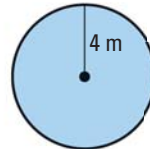
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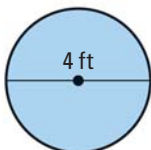
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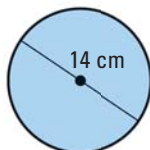
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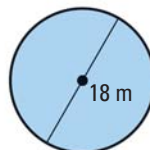
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