We used a calculator and rounded the answer to two decimal places, so the answer is not exact. We indicate that the answer is not exact by using the symbol ≈ for "approximately equal to." The circumference equals $2\pi r$, so now we can find the circumference.

$$\begin{aligned} \text{Circumference} &= 2\pi r && \text{equation} \\ &\approx 2\pi(1.97) && \text{substituted} \\ &\approx \mathbf{12.38\ m} && \text{simplified} \end{aligned}$$

example 2.6 The circumference of a circle is 8π cm. What is the area of the circle?

solution First we find the radius.

$$\begin{aligned} \text{Circumference} &= 2\pi r && \text{equation} \\ 8\pi &= 2\pi r && \text{substituted} \\ \frac{8\pi}{2\pi} &= r && \text{divided by } 2\pi \\ 4 \text{ cm} &= r && \text{simplified} \end{aligned}$$

Now we can use 4 cm for r to find the area.

$$\begin{aligned} \text{Area} &= \pi r^2 && \text{equation} \\ &= \pi(4 \text{ cm})^2 && \text{substituted} \\ &= \mathbf{16\pi\ cm^2} && \text{simplified} \end{aligned}$$

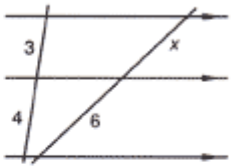
practice Simplify:

a. -4^{-2} **b.** $-(-4)^{-2}$ **c.** $\dfrac{(x^2y^{-2})^0(x^{-3}y)^{-2}}{y^{-8}x^4y^2x^3}$

d. The area of a circle is 49π cm^2. What is the circumference of the circle?

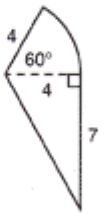
problem set 2

1. Find x.



2. Find x and y.

3. The base of a cylinder is a right triangle topped by a 60° sector of a circle, as shown. If the dimensions are in meters and the height of the cylinder is 8 meters, what is the volume of the cylinder?



4. Find A, B, and C.

5. Find A, B, and C.