Lesson 14.3:

Surface Areas of Cylinders

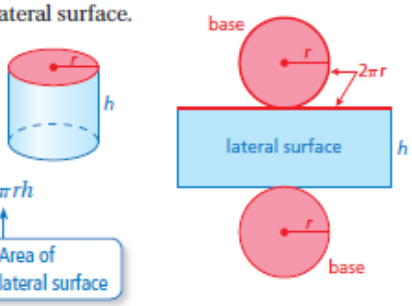
Essential Question

How can you find the surface area of a cylinder?

Key Idea

Surface Area of a Cylinder

Words The surface area S of a cylinder is the sum of the areas of the bases and the lateral surface.

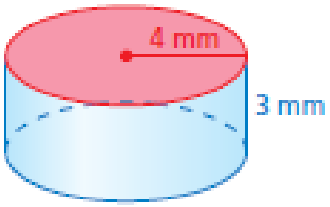


Algebra $S = 2\pi r^2 + 2\pi rh$

Areas of bases

Area of lateral surface

Find the surface area of the cylinder. Round your answer to the nearest tenth.



$2\pi r^2 + 2\pi rh$

bases rectangle

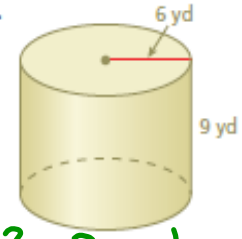
$2 \cdot 3.14 \cdot (4\text{mm})^2 + 2 \cdot 3.14 \cdot 4\text{mm} \cdot 3\text{mm}$

$100.48\text{mm}^2 + 75.36\text{mm}^2$

175.84mm^2

Find the surface area of the cylinder. Round your answer to the nearest tenth.

1.



$2\pi r^2 + 2\pi rh$

$2 \cdot 3.14 \cdot (6yd)^2 + 2 \cdot 3.14 \cdot 6yd \cdot 9yd$

$226.08yd^2 + 339.12yd^2$

$565.2\ yd^2$

2.

$2\pi r^2 + 2\pi rh$

$2 \cdot 3.14 \cdot (3cm)^2 + 2 \cdot 3.14 \cdot (3cm)(18cm)$

$56.52cm^2 + 339.12cm^2$

$395.64cm^2$

How much paper is used for the label on the can of peas? Lateral SA

$2\pi rh$

$2 \cdot 3.14 \cdot 1in \cdot 2in$

$12.56in^2$

You earn $0.01 for recycling the can in Example 2. How much can you expect to earn for recycling the tomato can? Assume that the recycle value is proportional to the surface area.

Ex. 2: $0.01 for $12.56 in^2$

$2\pi rh = 2 \cdot 3.14 \cdot 2 in \cdot 5.5 in$

$= 69.08 in^2$

$\frac{0.01}{12.56} = \frac{x}{69.08}$ (·5.5 on both sides)

$x = 0.055$

→ $0.06