

Warm-Up

November 16, 2017

1. Are the following perfect squares?

How do you know?

A. $\frac{32}{162}$ $\frac{16}{81}$ ^{4x4}
81 ^{9x9}
yes

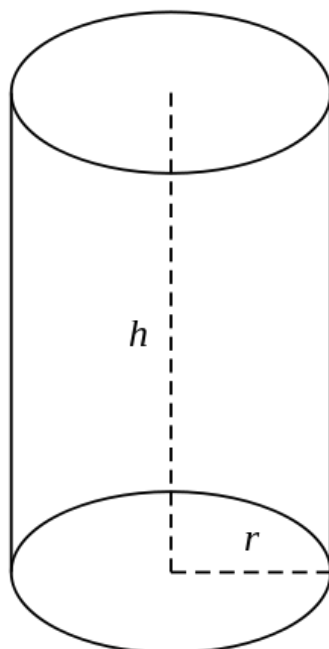
B. 0.0144
 $\frac{144}{10000}$
yes
← 12x12
← 100x100

2. Without using a calculator estimate the square root of 45

$\sqrt{36}$ $\sqrt{49}$
 6 7
 ~ 6.7

- 9
- 16
- 25
- 36
- 49
- 64

Surface Area of a Composite Object With **Cylinders**

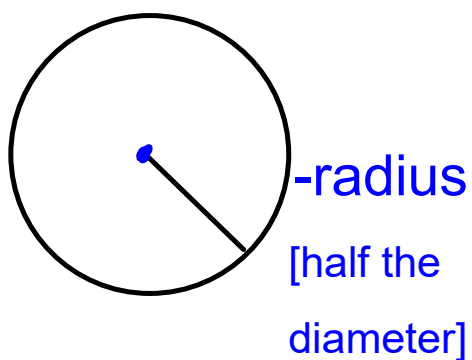


h = height

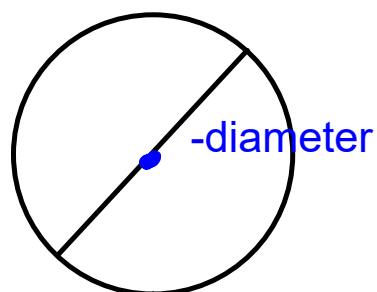
r = radius



Review



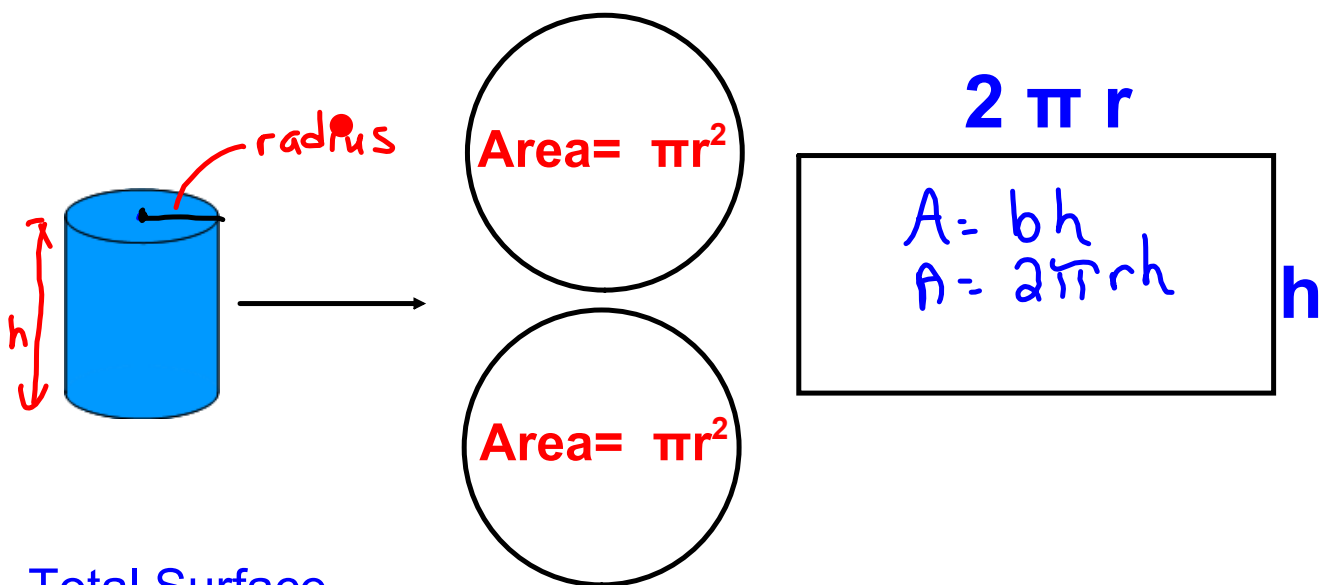
$$r = 5\text{cm}$$



$$d = 10\text{cm}$$

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

Parts of a Cylinder



Total Surface

Area of Cylinder =

area of 2 circles + area of curved surface

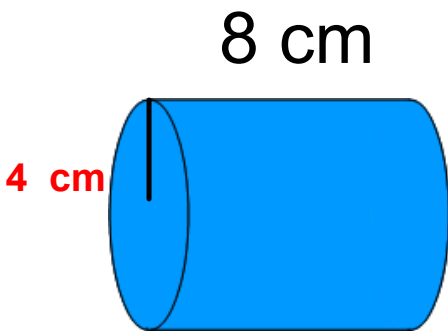
$$\text{SA of cylinder} = 2\pi r^2 + 2\pi r h$$

$\pi = 3.14$

Surface Area of Cylinder

$$2\pi r^2 + 2\pi r h$$

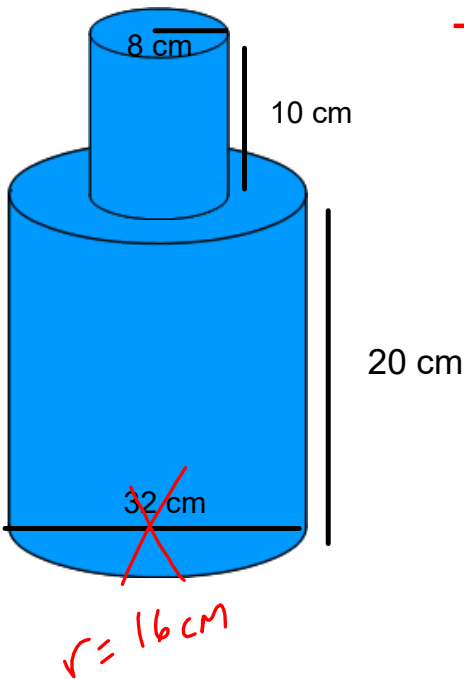
area of two circles + area of curved surface



$$\begin{aligned}
 SA &= 2\pi r^2 + 2\pi r h \\
 &= 2(3.14)(4)^2 + 2(3.14)(4)(8) \\
 &= 2(3.14)(16) + 200.96 \\
 &= 100.48 + 200.96
 \end{aligned}$$

Area of circles

$$301.44 \text{ cm}^2$$



$$SA = 2\pi r^2 + 2\pi r h$$

Top Cylinder

$$SA = 2\pi r^2 + 2\pi r h$$

$$= 2(3.14)(8)^2 + 2(3.14)(8)(10)$$

$$= 2(3.14)(64) + 502.4$$

$$= 401.92 + 502.4$$

$$= 904.32$$

Area of 2 circles

Bottom Cylinder

$$SA = 2\pi r^2 + 2\pi r h$$

$$= 2(3.14)(16)^2 + 2(3.14)(16)(20)$$

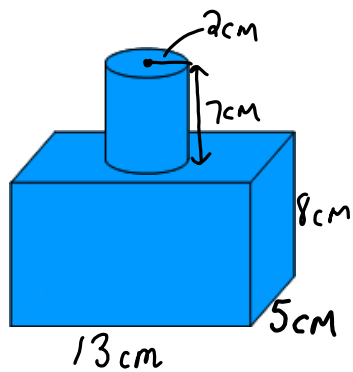
$$= 2(3.14)(256) + 2009.6$$

$$= 1607.68 + 2009.6$$

$$= 3617.28$$

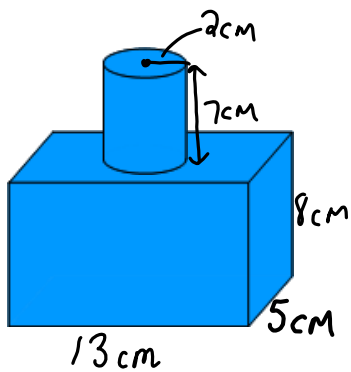
$$TSA = 904.32 + 3617.28 - 401.92$$

$$4119.68 \text{ cm}^2$$



Rectangular Prism

Cylinder $2\pi r^2 + 2\pi r h$



Cylinder $SA = 2\pi r^2 + 2\pi r h$
 $= 2(3.14)(2)^2 + 2(3.14)(2)(7)$
 $= 25.12 + 87.92$
 $= 113.04$

Rectangular Prism

<p>F/B</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">x2</div> 8	<p>T/B</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">x2</div> 5	<p>side</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">x2</div> 8
<p>13</p> $A = bh$ $= 13 \times 8$ $= 104$ $\times 2$ <hr style="width: 50%; margin: 0 auto;"/> 208	<p>13</p> $A = bh$ $= 13 \times 5$ $= 65$ $\times 2$ <hr style="width: 50%; margin: 0 auto;"/> 130	<p>5</p> $A = bh$ $= 5 \times 8$ $= 40$ $\times 2$ <hr style="width: 50%; margin: 0 auto;"/> 80
$+ \quad + \quad +$		
$\therefore 418$		

$TSA = 418 + 113.04$
 $= 531.04 \text{ cm}^2$
 $- 25.12$

505.92 cm^2

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

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3 a, b, c

a) 121 cm^2

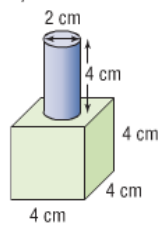
b) 117 cm^2

c) 283 cm^2

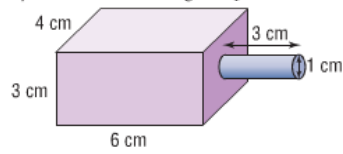
* Use
the
radius

composite object. Give the answers to the nearest whole number.

a) cylinder on a cube



b) cylinder on a rectangular prism



c) cylinder on a cylinder

