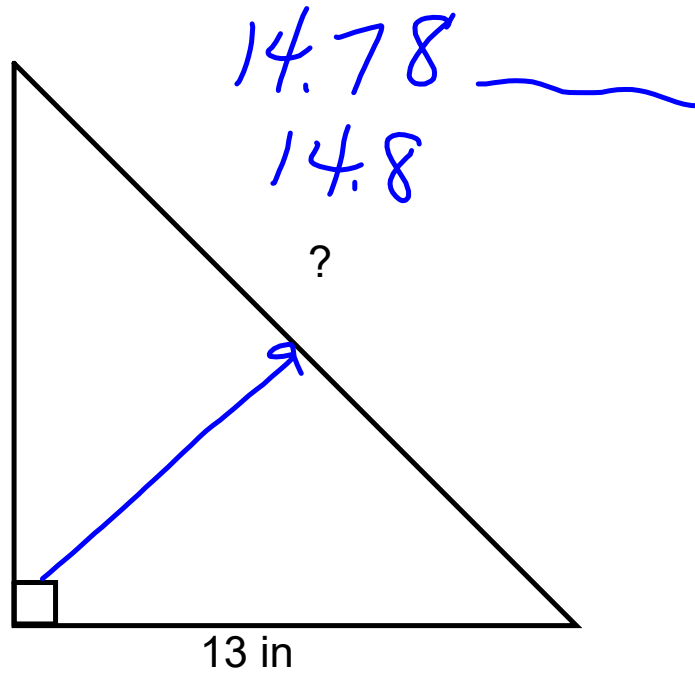


Warm Up

Calculate the unknown:

$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 7^2 + 13^2 \\c^2 &= 49 + 169 \\c &= \sqrt{218} \quad 7 \text{ in} \\c &= \underline{\underline{14.8}}\end{aligned}$$



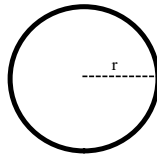
AREA Formulas...

Rectangle or Square



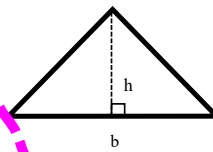
$$A = bh$$

Circle



$$A = \pi r^2$$

Triangle

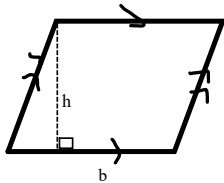


$$A = \frac{1}{2} bh$$

or

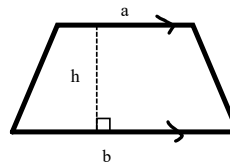
$$A = \frac{b \times h}{2}$$

Parallelogram or Rhombus



$$A = bh$$

Trapezoid



$$A = \frac{1}{2} h(a + b)$$

or

$$A = \frac{h(a + b)}{2}$$

Surface Area

Grade 9 review

Surface area is the total area of all of the faces of the object.

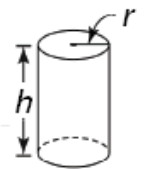
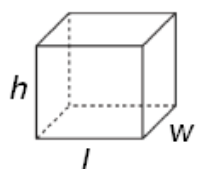
Steps need to find Surface area are:

- 1. Draw all of the faces with dimensions displayed on them.**
- 2. Find the area of each face.**
- 3. Then add up the areas of all of the faces.**



Activate Prior Learning: Surface Areas of Right Prisms and Cylinders

SA = (Area of base) x height



$$SA = 2lw + 2hl + 2hw$$

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

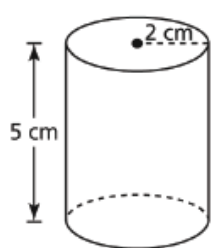
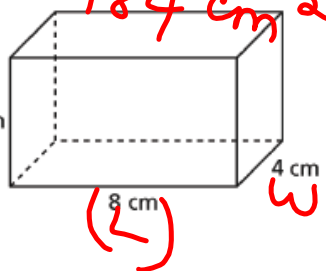
Which object below has the greater surface area?

Handwritten calculation for the prism:

$$= 2(4)(8) + 2(5)(8) + 2(5)(4)$$

$$= 64 + 80 + 40$$

$$= 184 \text{ cm}^2$$



Handwritten calculation for the cylinder:

$$2\pi(2)^2 + 2\pi(2)(5)$$

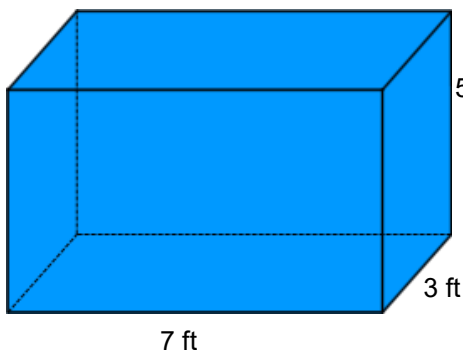
$$25.16 + 62.8$$

$$88 \text{ cm}^2$$



Surface Area

What is the surface area of the rectangular prism in squared metres?



$$\begin{aligned} SA &= 2lw + 2hw + 2lh \\ &= 2(7)(3) + 2(5)(3) + 2(7)(5) \\ &= 42 + 30 + 70 \\ &= 142 \text{ ft}^2 \end{aligned}$$

Conversion:

$$\begin{aligned} 142 \text{ ft}^2 &\times \left(\frac{0.3048 \text{ m}}{1 \text{ ft}} \right)^2 \\ &= 13.2 \text{ m}^2 \end{aligned}$$

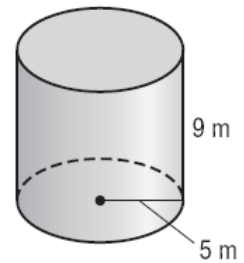
5

The surface area S of a cylinder with height h and radius r is the area of the two bases plus the area of the curved surface, or $S = 2\pi r^2 + 2\pi rh$.

EXAMPLE 2 Find the surface area of the cylinder.
Round to the nearest tenth.

$S = 2\pi r^2 + 2\pi rh$
 $= 2\pi(5)^2 + 2\pi(5)(9)$
 $= 157 + 282.6$
 $= 439.6 \text{ m}^2$

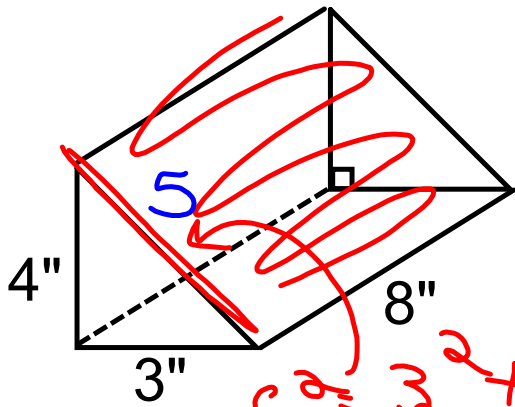
Surface area of a cylinder
 $r = 5, h = 9$
 Simplify.



What is the surface area of the cylinder in squared yards?

$439.6 \text{ m}^2 \times \left(\frac{1.0936 \text{ yd}}{1 \text{ m}} \right)^2$
 $\underline{\underline{525.7 \text{ yd}^2}}$

EXAMPLE #3:



ANOTHER FORMULA...



Handwritten red notes:

$$c^2 = 3^2 + 4^2$$

$$c^2 = 9 + 16$$

$$c = \sqrt{25}$$

$$c = 5$$

What is the surface area in squared centimeters?

Handwritten blue work:

$$2\left(\frac{b \times h}{2}\right) + (l \times w) + (l \times w) + (l \times w)$$

$$2\left(\frac{4 \times 3}{2}\right) + 8 \times 5 + 8 \times 3 + 4 \times 8$$

$$12 + 40 + 24 + 32$$

$$108 \text{ in}^2$$

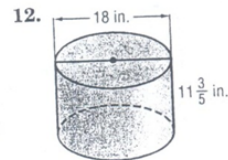
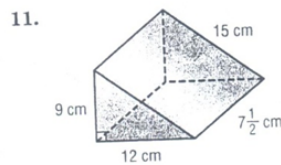
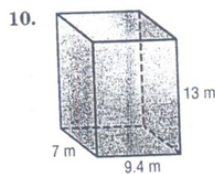
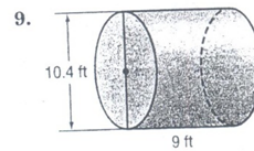
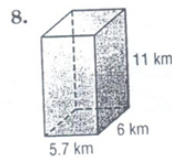
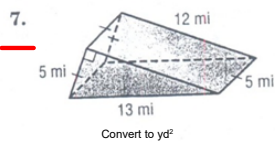
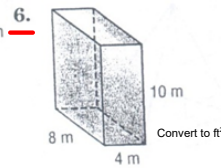
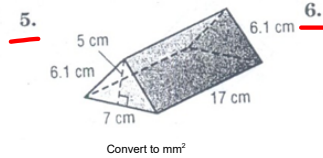
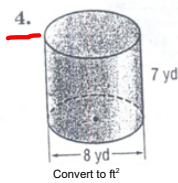
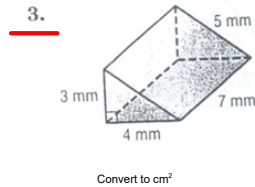
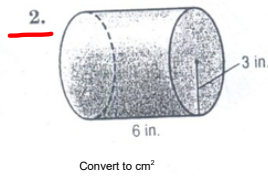
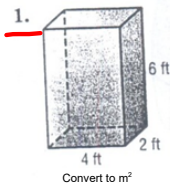


NAME _____ DATE _____ PERIOD _____

Practice: Skills

Surface Area of Prisms and Cylinders

Find the surface area of each solid. Round to the nearest tenth if necessary.



13. cube: edge length, 11 m

14. rectangular prism: length, 9 cm; width, 13 cm; height, 18.4 cm

15. cylinder: radius, 9.4 mm; height, 15 mm

16. cylinder: diameter, 28 in.; height, 12.6 in. Convert to cm^2

Attachments

Worksheet - Surface Area of Prisms and Cylinders.docx

Worksheet4_Basic Area Conversions.pdf