

6 Chapter Review

Review Key Vocabulary

three-dimensional figure, p. 252
polyhedron, p. 252
lateral face, p. 252

surface area, p. 256
net, p. 256
regular pyramid, p. 272

slant height, pp. 272, 278
composite solid, p. 284

Review Examples and Exercises

6.1 Drawing 3-Dimensional Figures (pp. 250–255)

Draw a triangular prism.

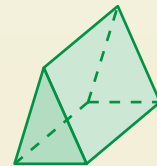
Draw identical triangular bases.



Connect corresponding vertices.



Change any *hidden* lines to dashed lines.



Exercises

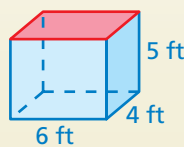
Draw the solid.

- Square pyramid
- Hexagonal prism
- Cylinder

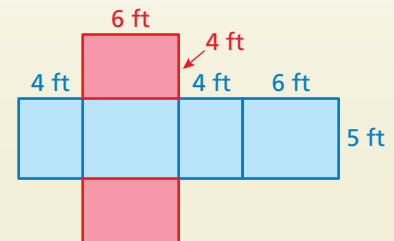
6.2 Surface Areas of Prisms (pp. 256–261)

Find the surface area of the prism.

Draw a net.



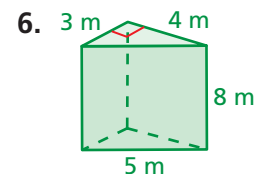
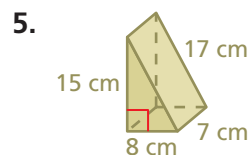
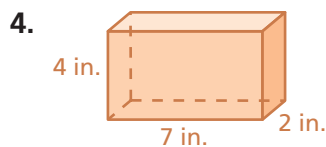
$$\begin{aligned} S &= 2lw + 2lh + 2wh \\ &= 2(6)(4) + 2(6)(5) + 2(4)(5) \\ &= 48 + 60 + 40 \\ &= 148 \end{aligned}$$



∴ The surface area is 148 square feet.

Exercises

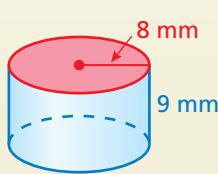
Find the surface area of the prism.



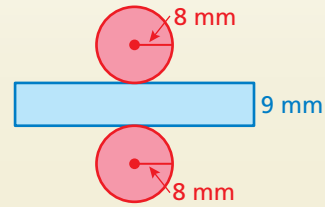
6.3 Surface Areas of Cylinders (pp. 262–267)

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

Draw a net.



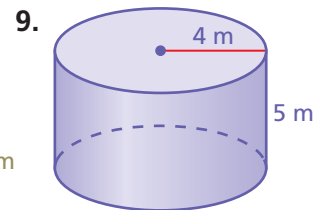
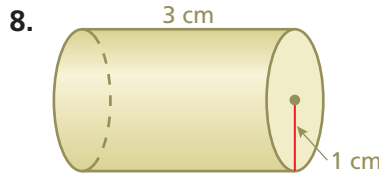
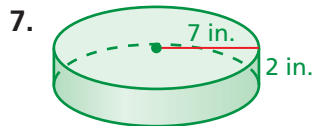
$$\begin{aligned} S &= 2\pi r^2 + 2\pi rh \\ &= 2\pi(8)^2 + 2\pi(8)(9) \\ &= 128\pi + 144\pi \\ &= 272\pi \approx 854.1 \end{aligned}$$



∴ The surface area is about 854.1 square millimeters.

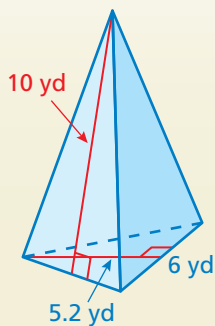
Exercises

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



6.4 Surface Areas of Pyramids (pp. 270–275)

Find the surface area of the regular pyramid.



Draw a net.

Area of base

$$\frac{1}{2} \cdot 6 \cdot 5.2 = 15.6$$

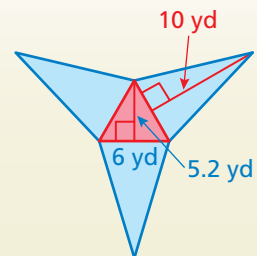
Area of a lateral face

$$\frac{1}{2} \cdot 6 \cdot 10 = 30$$

Find the sum of the areas of the base and all 3 lateral faces.

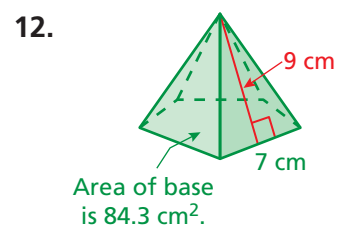
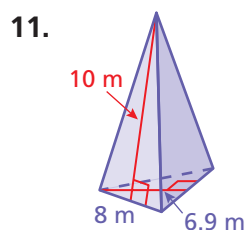
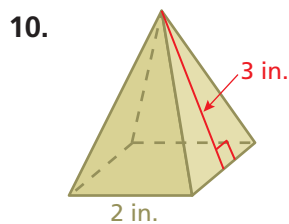
$$S = 15.6 + 30 + 30 + 30 = 105.6$$

∴ The surface area is 105.6 square yards.



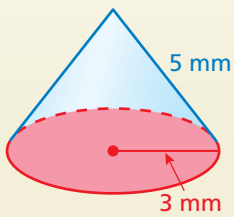
Exercises

Find the surface area of the regular pyramid.



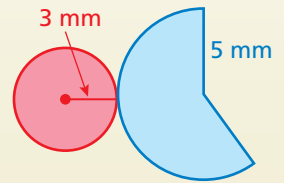
6.5 Surface Areas of Cones (pp. 276–281)

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



Draw a net.

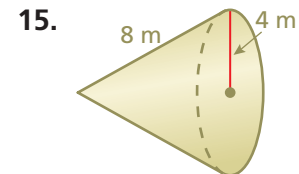
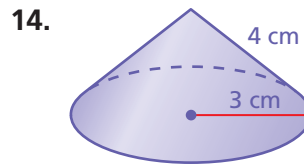
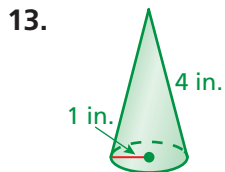
$$\begin{aligned} S &= \pi r^2 + \pi r \ell \\ &= \pi(3)^2 + \pi(3)(5) \\ &= 9\pi + 15\pi \\ &= 24\pi \approx 75.4 \end{aligned}$$



∴ The surface area is about 75.4 square millimeters.

Exercises

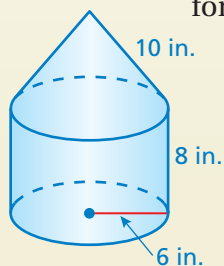
Find the surface area of the cone. Round your answer to the nearest tenth.



6.6 Surface Areas of Composite Solids (pp. 282–287)

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

The solid is made of a cone and a cylinder. Use the surface area formulas. Do not include the areas of the bases that overlap.



Cone

$$\begin{aligned} S &= \pi r \ell \\ &= \pi(6)(10) \\ &= 60\pi \approx 188.4 \end{aligned}$$

Cylinder

$$\begin{aligned} S &= \pi r^2 + 2\pi r h \\ &= \pi(6)^2 + 2\pi(6)(8) \\ &= 36\pi + 96\pi \\ &= 132\pi \approx 414.5 \end{aligned}$$

∴ The surface area is about $188.4 + 414.5 = 602.9$ square inches.

Exercises

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

