Volume and Surface Area Practice

List the Surface Area and Volume formulas used for each shape listed.

1. Prism and Cylinder
   \[ SA = \quad V = \]

2. Pyramid and Cone
   \[ SA = \quad V = \]

3. Sphere
   \[ SA = \quad V = \]

Find the Surface Area for the figures in the left column and Volume for the figures in the right column.

Clearly show all formulas, values and your final answer.

4. 
   \[
   \begin{array}{c}
   \text{9.1} \\
   \text{8.3} \\
   \text{6.2}
   \end{array}
   \]

5. Regular hexagonal prism
   \[ \text{5 cm} \]

6. 
   \[
   \begin{array}{c}
   \text{50 cm} \\
   \text{14 cm}
   \end{array}
   \]

7. 
   \[
   \begin{array}{c}
   \text{16 ft} \\
   \text{35 ft} \\
   \text{40 ft}
   \end{array}
   \]

8. 
   \[
   \begin{array}{c}
   \text{18 in.}
   \end{array}
   \]

9. 
   \[
   \begin{array}{c}
   \text{14 in.} \\
   \text{3 in.}
   \end{array}
   \]

10. A sphere is inscribed inside a cube. The volume of the sphere is \(288\pi \text{ cm}^3\).
    a) What is the side length of the cube?
    b) What is the surface area of the cube?
11. A regular pyramid is inscribed in a square prism as shown. Find the surface area of each solid.

![Pyramid in Cube Diagram]

12. What is the volume of the cylinder when the cone is removed?

![Cylinder and Cone Diagram]

Mixed Answers: $460\sqrt{3}$, $896\pi$, $126\pi$, $170$, $90$, $277.686$, $5553.3$,
$1296\pi$, $864$, $12$, $1296\pi$ (again)
Volume and Surface Area Practice

List the Surface Area and Volume formulas used for each shape listed.

1. Prism and Cylinder
   \[ SA = 2B + ph \]
   \[ V = Bh \]

2. Pyramid and Cone
   \[ SA = \frac{1}{2}pl + B \]
   \[ V = \frac{1}{3}Bh \]

3. Sphere
   \[ SA = 4\pi r^2 \]
   \[ V = \frac{4}{3}\pi r^3 \]

Find the Surface Area for the figures in the left column and Volume for the figures in the right column.

Clearly show all formulas, values and your final answer.

4. \[ B = 2.3 \]
   \[ p = 7 \]
   \[ h = 9.1 \]
   \[ SA = 2B + ph \]
   \[ = 2(2.3) + 24.86 \cdot 9.1 \]
   \[ = 51.46 + 226.226 \]
   \[ = 277.686 \]

5. \[ A = \frac{1}{2} \cdot AB \cdot CD \]
   \[ = \frac{1}{2} \cdot 6 \cdot 10 \]
   \[ = 30 \]
   \[ B = 14.7 \]
   \[ SA = B + \frac{1}{2}pl \]
   \[ = 14.7 + \frac{1}{2} \cdot 28 \cdot 50 \]
   \[ = 196\pi + 700\pi \]
   \[ = 896\pi \]

6. \[ B = 50 \]
   \[ 14 \]
   \[ SA = B + \frac{1}{2}pl \]
   \[ = 50 \cdot 1 + \frac{1}{2} \cdot 14 \cdot 30 \]
   \[ = 196\pi + 700\pi \]
   \[ = 896\pi \]

7. \[ B = 35 \]
   \[ 40 \]
   \[ 35 \]
   \[ V = Bh + \frac{1}{2}Bh \]
   \[ = 35 \cdot 40 + \frac{1}{2} \cdot 35 \cdot 16 \]
   \[ = 4900 + 563.33 \]
   \[ = 5553.33 \]

8. \[ B = 18 \]
   \[ SA = 4\pi r^2 \]
   \[ \frac{4}{r} \]
   \[ SA = 12\pi \]

9. \[ B = 14 \]
   \[ 3 \]
   \[ V = Bh \]
   \[ \frac{1}{2} \]
   \[ V = 12\pi \]

10. A sphere is inscribed inside a cube. The volume of the sphere is \(288\pi\) cm\(^3\).
    a) What is the side length of the cube? 12
    
    b) What is the surface area of the cube?
    
    \[ r = 6 \]
    \[ \pi = \frac{4}{3} \cdot 288\pi \]
    \[ = \frac{4}{3} \cdot 288 \cdot 3 \]
    \[ = 864 \]
    \[ SA = 864 \]
11. A regular pyramid is inscribed in a square prism as shown. Find the surface area of each solid.

\[ SA = 2B + \text{ph} \]
\[ = 2(x^2) + 20 \cdot 10 \]
\[ = 300 \]

\[ SA_{\text{pyr}} = B + \frac{1}{2}pl \]
\[ = 25 + \frac{1}{2} \cdot 20 \cdot 13 \]
\[ = 25 + 65 \]
\[ = 90 \]

12. What is the volume of the cylinder when the cone is removed?

\[ V = \text{Cyl} - \text{Cone} \]
\[ = Bh - \frac{1}{3}Bh \]
\[ = \pi \cdot 24 - \frac{1}{3} \cdot \pi \cdot 24 \]
\[ = 194.4 \pi - 64.8 \pi \]
\[ V = 129.6 \pi \]

Mixed Answers: \( 960 \sqrt{3}, 846 \pi, 126 \pi, 176, 96, 277.686, 555.3 \sqrt{3} \)
\( 1296 \pi, 829, 12, 1296 \pi \) (again)