Name: **Answer Key**

Interesting Bases: Surface Area and Volume of Prisms and Pyramids

Practice Examples: Round to the nearest tenth.
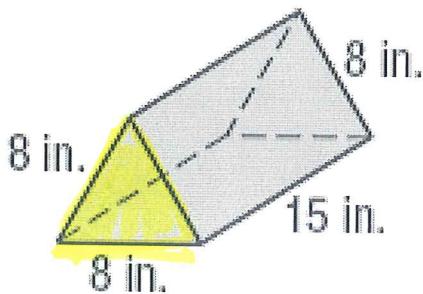
1. Find the surface area.

$2\left(\frac{1}{2} 8 \cdot 8 \sin(60)\right)$
$+ 3(15 \times 8)$

$SA \approx 415.4 \text{ in}^2$
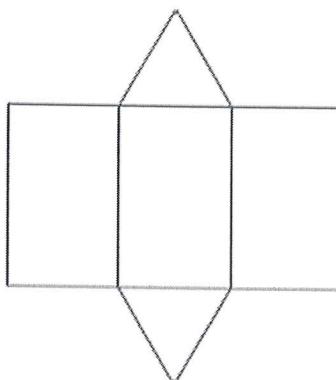
2. Find the volume.   The volume of a Prism is

$V = B \cdot h$
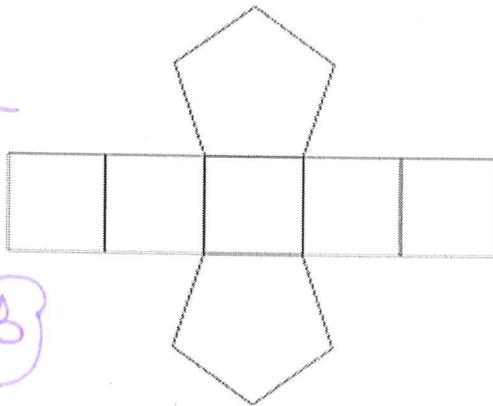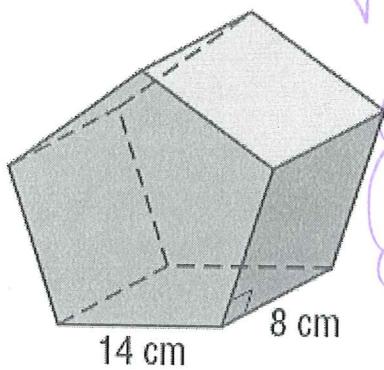
$B = \text{area of Pentagon}$

$h = 8$

14 cm   8 cm

B: Find r 1st =

$\dfrac{\sin(72)}{14} = \dfrac{\sin(54)}{r}$

$r = 11.9 \text{ cm}$

Area of Base: $5\frac{1}{2}(11.9)^2 \sin(72)$

$h = 8$

$\therefore V = 5\frac{1}{2} 11.9^2 \sin(72) \times 8$

$V \approx 2693.6 \text{ cm}^3$

3. Find the surface area and volume.
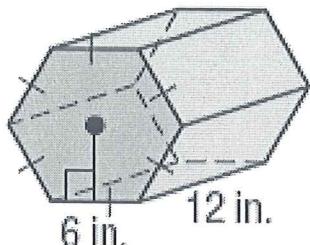
Area of the base

$r=6$

$B = 6\frac{1}{2} 6 \cdot 6 \sin(60)$

$V = B \cdot h \qquad V = 6\frac{1}{2} 6^2 \sin(60) \times 12$

$V \approx 1122.4 \, m^3$

12 in.

6 in.

$SA = 2(6\frac{1}{2} 6^2 \sin(60))$
$\quad + 6(6 \times 12)$

$SA \approx 619.1 \, in^2$

4. Find the volume.

8 m

7 m
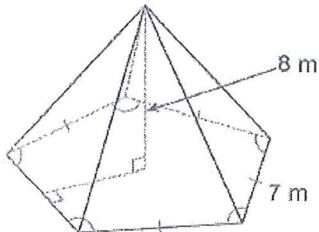
$V = \frac{1}{3} B \cdot h \qquad V = \frac{1}{3} 5\frac{1}{2} 6^2 \sin(72) \times 8$

area of the base

$V \approx 228.3 \, m^3$

$\frac{\sin(72)}{7} = \frac{\sin(54)}{r}$

$72 \quad r$

54

7
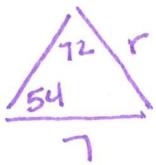
$r = 6.0$

$B = 5\frac{1}{2} 6 \cdot 6 \sin(72)$

5. Find the surface area.

Area of the Base:

$r=6$

60

6

$B = 6\frac{1}{2} 6 \cdot 6 \sin(60)$

12.2 in

6 in
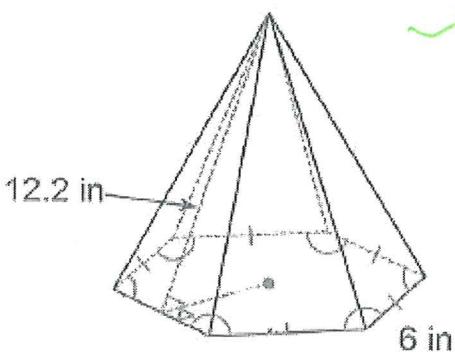
$SA = 6\frac{1}{2} 6 \cdot 6 \sin(60) \leftarrow$ area of Base
$\quad + 6(\frac{1}{2} 6 \times 12.2) \leftarrow$ area of $\triangle s$.

$SA = 313.1 \, in^2$