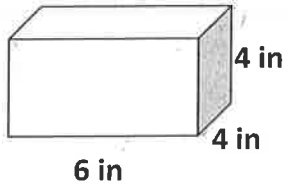
PRACTICE: SURFACE AREA AND VOLUME Practice Name Key

- **Read directions**
- **Draw pictures if needed**
- **Show work!**

1) Find the volume and surface area



SURFACE AREA

F|B $6 \cdot 4 = 24$

S|S $4 \cdot 4 = 16$

T|B $6 \cdot 4 = 24$

$128 in^2$

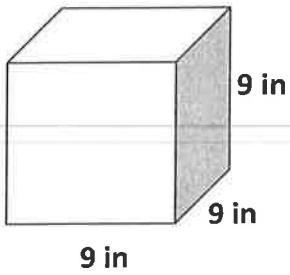
VOLUME

lwh

$6 \cdot 4 \cdot 4$

$96 in^3$

2) Find the volume and surface area



SURFACE AREA

$9 \times 9 = 81$

$81 \times 6 =$

$486 in^2$

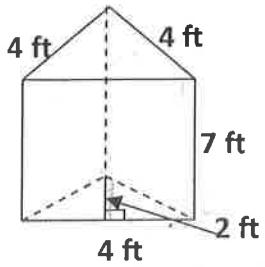
VOLUME

lwh

$9 \cdot 9 \cdot 9$

$729 in^3$

3) Find the volume and surface area



SURFACE AREA

T|B $\frac{4 \cdot 2}{2} = 4 \times 2 = 8$

S $4 \cdot 7 = 28 \times 3 = 84$

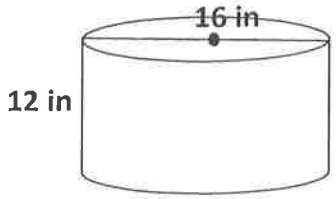
$92 ft^2$

VOLUME

$\left(\frac{bh}{2}\right) H$

$\frac{4 \cdot 2}{2} \cdot 7 = 28 ft^3$

4) Find the volume and surface area



SURFACE AREA

F $2\pi r^2 + 2\pi rh$

S $2(3.14)(8^2) + 2(3.14)(8)(12)$

A $1004.8 in^2$

VOLUME

$\pi r^2 h$

$3.14(8^2)12$

$2411.52 in^3$

5) Find the volume and surface area of a box that is 4 feet high, 6 feet wide and 10 feet long.

Sketch a picture

SURFACE AREA

F|B $10 \cdot 4$

T|B $10 \cdot 6$

S|S $6 \cdot 4$

$(10 + 6 + 10 + 6)\,4 + 2(10 \cdot 6)$

$4(32) + 2(60)$

$40 + 60 + 24 = 124$

$2\ 8 \times 12\ 0$

VOLUME

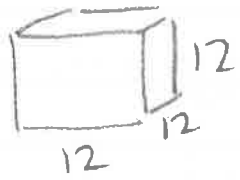
lwh

$10 \cdot 6 \cdot 4$

$240 ft^3$

6) Find the volume and surface area of a cube with sides that are 12 feet long.

Sketch a picture



SURFACE AREA

144×6

$864 ft^2$

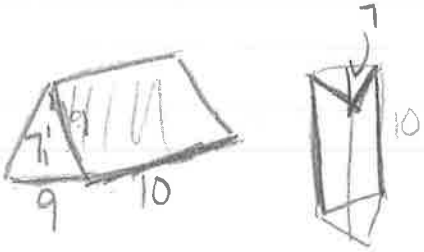
VOLUME

$12 \cdot 12 \cdot 12$

$1728 ft^3$

7) Find the volume and surface area of the triangular prism, with a triangular base that is an equilateral triangle with side lengths 9 m, height of 7 m and the height of the prism is 10 m

Sketch a picture



SURFACE AREA

$\frac{bh}{2} = \frac{7(9)}{2} \times 2 = 63$

$9 \times 10 = 90 \times 3 = 270$

$333 m^2$

VOLUME

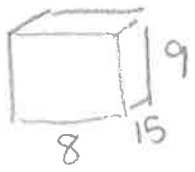
$\frac{bh}{2} H$

$\frac{9 \cdot 7}{2} \cdot 10 = 315 m^3$

8) A rectangular storage box is 8 in. wide, 15 in. long and 9 in. high. How many square inches of colored paper are needed to cover the box?

- If you are cover the outside of a box are you finding volume or surface area?

Sketch a picture



F|B = $8 \times 9 = 72$

L|R = $15 \times 9 = 135$

T|B = $8 \times 15 = 120$

$327 \times 2 = 654 in^2$

9) The product you designed will be put in a cylindrical shaped package. If the cylinder has a radius of 9 inches and a height of 20 inches, how much paper would be needed to make a label for the new package?

F $2\pi rh$

S $2\pi \cdot 9 \cdot 20$

A $360\pi = 1130.4 in^2$

10) The kiddie pool you found for your cousin had a diameter of 8 ft and a height of 2 feet. How many cubic feet of water would you need to fill the pool if you only wanted to fill it 1 ½ feet high?

F $\pi r^2 h$

S $\pi \cdot 4^2 \cdot 1.5$

A $24\pi = 75.36 ft^3$