

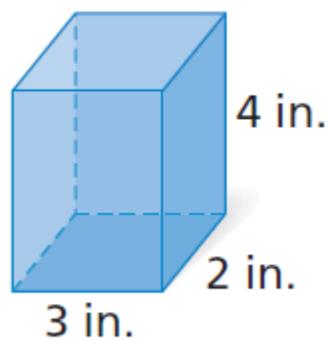
3-D GEOMETRY

(Volume & Surface Area)

FORMULA(S):

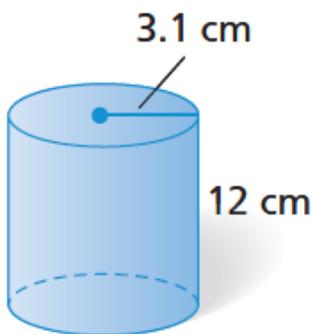
EXAMPLE 1:

Find the volume.



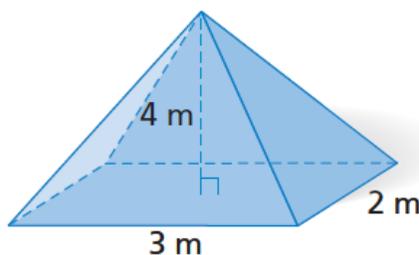
EXAMPLE 15:

Find the approximate volume in square inches.



EXAMPLE 16:

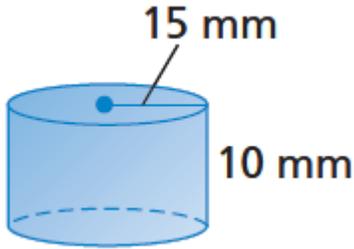
Find the approximate volume in cubic feet.



MEASUREMENT in 3-D FIGURES

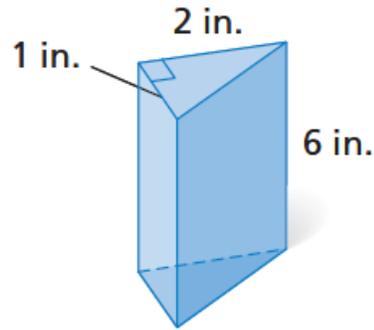
EXAMPLE 13:

Find the approximate surface area in square inches.



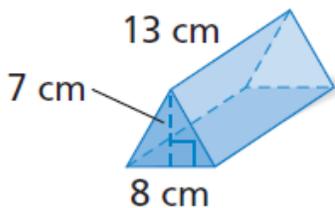
EXAMPLE 14:

Find the approximate volume in cubic centimeters.



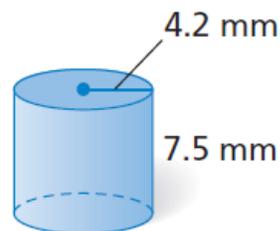
EXAMPLE 2:

Find the volume.



EXAMPLE 3:

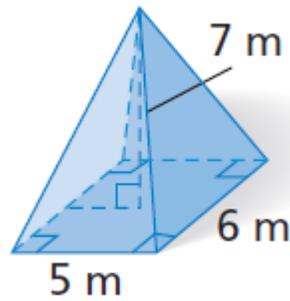
Find the volume. Use 3.14 for pi.



FORMULA(S)

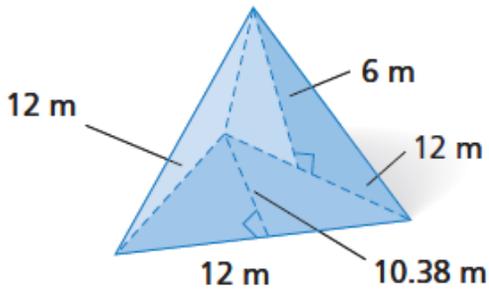
EXAMPLE 4:

Find the volume.



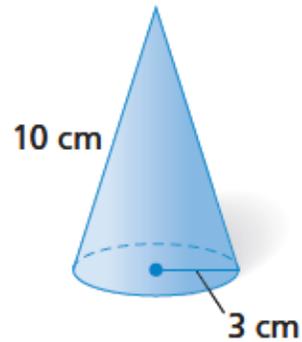
EXAMPLE 11:

Find the surface area.



EXAMPLE 12:

Find the surface area. Use 3.14 for pi.

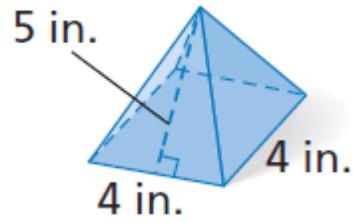


SURFACE AREA OF PYRAMIDS & CONES

FORMULA(S)

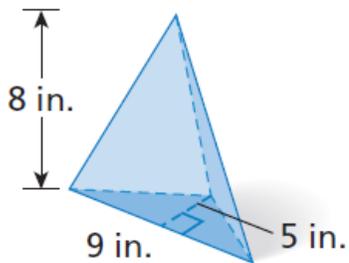
EXAMPLE 10:

Find the surface area.



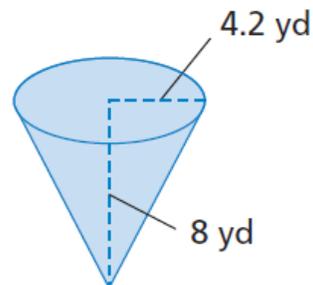
EXAMPLE 5:

Find the volume.



EXAMPLE 6:

Find the volume. Use 3.14 for pi.

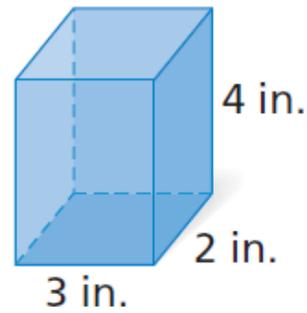


VOLUME OF PYRAMIDS & CONES

FORMULA(S)

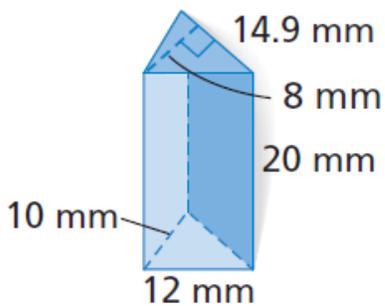
EXAMPLE 7:

Find the surface area.



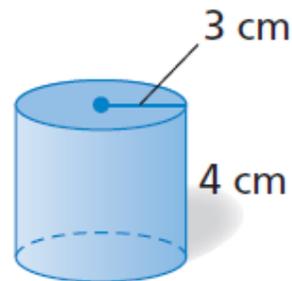
EXAMPLE 8:

Find the surface area.



EXAMPLE 9:

Find the surface area. Use 3.14 for pi.



Answer Key!

Note: I have written this answer key based on the formulas found on the Florida FCAT 2.0 Reference Sheet.

3-D GEOMETRY

(Volume & Surface Area)

FORMULA(S)

$$V = Bh$$

*Remember **B = Area of Base**

Rectangular

$$B = bh$$

Triangular

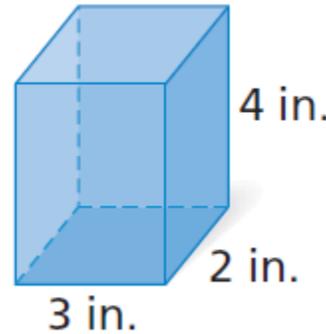
$$B = \frac{1}{2}bh$$

Cylinder

$$B = \pi r^2$$

EXAMPLE 1:

Find the volume.



$$V = Bh$$

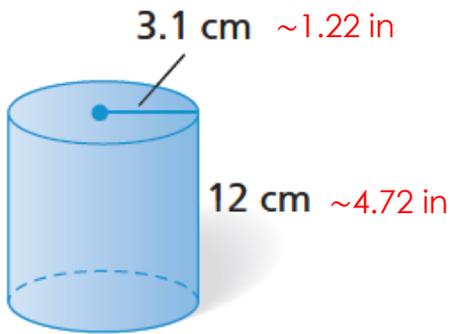
$$V = (bh)h$$

$$V = (3\text{in} \cdot 2\text{in}) \cdot 4\text{in}$$

$$V = 24\text{in}^3$$

EXAMPLE 15:

Find the approximate volume in square inches.



$$V = Bh$$

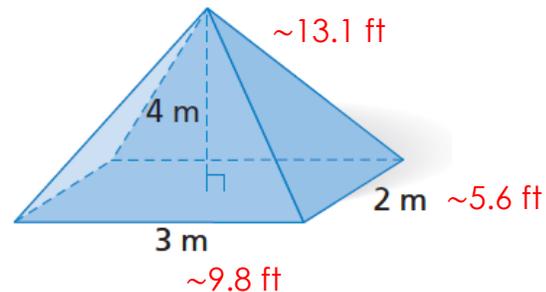
$$V = (\pi r^2)h$$

$$V = (3.14 \cdot 1.22^2) \cdot 4.72\text{in}$$

$$V = 22.1\text{in}^3$$

EXAMPLE 16:

Find the approximate volume in cubic feet.



$$V = \frac{1}{3}Bh$$

$$V = \frac{1}{3}(bh)h$$

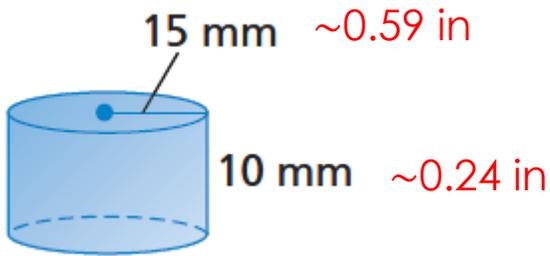
$$V = \frac{1}{3}(9.8\text{ft} \cdot 5.6\text{ft}) \cdot 13.1\text{ft}$$

$$V = 239.6\text{ft}^3$$

MEASUREMENT in 3-D FIGURES

EXAMPLE 13:

Find the approximate surface area in square inches.



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

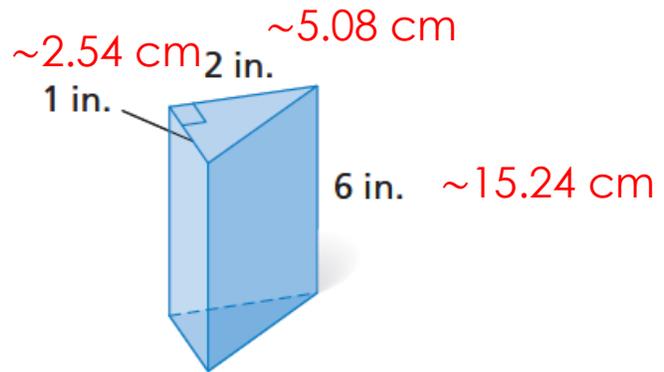
$$SA = 2(3.14)(0.59^2) + 2(3.14)(0.59)(0.24)$$

$$SA = 2.19 + 0.89$$

$$SA = 3.08 \text{ in}^2$$

EXAMPLE 14:

Find the approximate volume in cubic centimeters.



$$V = Bh$$

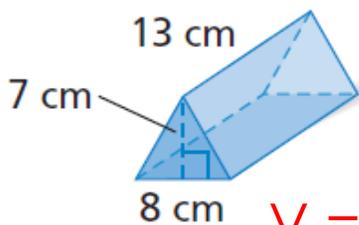
$$V = \left(\frac{1}{2}bh\right)l$$

$$V = (0.5)(2.54\text{cm})(5.08\text{cm})(15.24\text{cm})$$

$$V = 98.3 \text{ cm}^3$$

EXAMPLE 2:

Find the volume.



$$V = Bh$$

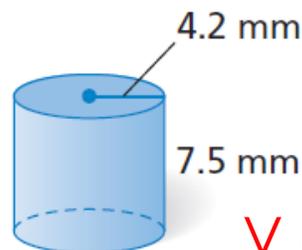
$$V = \left(\frac{1}{2}bh\right)l$$

$$V = (0.5)(8\text{cm})(7\text{cm})(13\text{cm})$$

$$V = 364 \text{ cm}^3$$

EXAMPLE 3:

Find the volume. Use 3.14 for pi.



$$V = Bh$$

$$V = (\pi r^2)h$$

$$V = (3.14)(4.2\text{mm})^2(7.5\text{mm})$$

$$V = 415.4\text{mm}^3$$

VOLUME OF PRISMS & CYLINDERS

FORMULA(S)

$$V = \frac{1}{3}Bh$$

Rectangular

Triangular

Cone

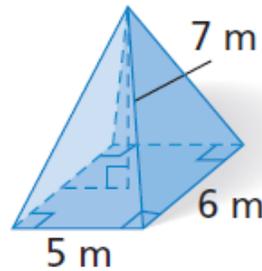
$$B = bh$$

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

$$B = \pi r^2$$

EXAMPLE 4:

Find the volume.



$$V = \frac{1}{3}Bh$$

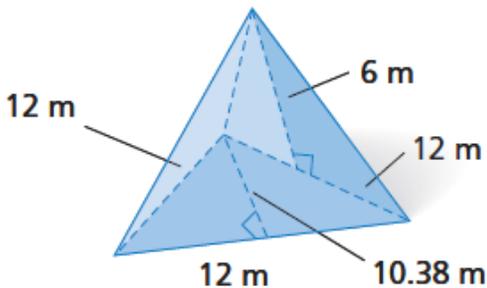
$$V = \frac{1}{3}(bh)h$$

$$V = \frac{1}{3}(5m)(6m)(7m)$$

$$V = 70m^3$$

EXAMPLE 11:

Find the surface area.



$$SA = \frac{1}{2}Pl + B$$

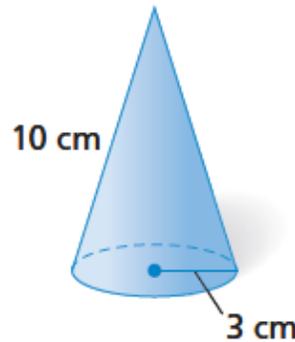
$$SA = 0.5(12 + 12 + 12)(6) + 0.5(10.38)(12)$$

$$SA = 108 + 62.28$$

$$SA = 170.28 m^2$$

EXAMPLE 12:

Find the surface area. Use 3.14 for pi.



$$SA = \frac{1}{2}(2\pi r)l + B$$

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

$$SA = (3.14)(3)(10) + 3.14(3)^2$$

$$SA = 94.2 + 28.26$$

$$SA = 122.46 cm^2$$

SURFACE AREA OF PYRAMIDS & CONES

FORMULA(S)

Rectangular & Triangular Pyramids

$$SA = \frac{1}{2}Pl + B$$

Cone

$$SA = \frac{1}{2}(2\pi r)\ell + B$$

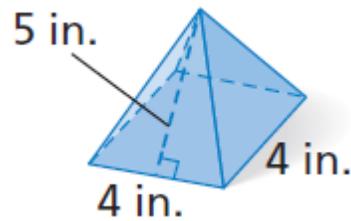
P = Perimeter of Base

ℓ = slant height

B = Area of Base

EXAMPLE 10:

Find the surface area.



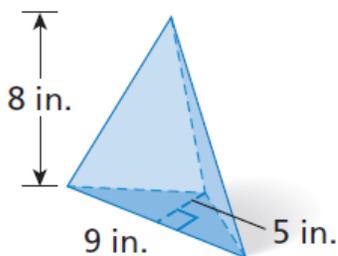
$$SA = \frac{1}{2}Pl + B$$

$$SA = 0.5(4+4+4+4)(5) + 4(4)$$

$$SA = 56\text{in}^2$$

EXAMPLE 5:

Find the volume.



$$V = \frac{1}{3}Bh$$

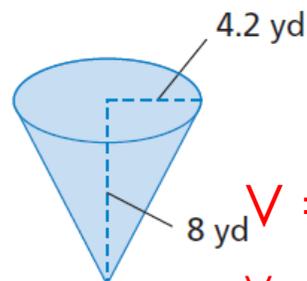
$$V = \frac{1}{3}\left(\frac{1}{2}bh\right)h$$

$$V = \frac{1}{3}\left(\frac{1}{2}\right)(9\text{in})(5\text{in})(8\text{in})$$

$$V = 60\text{in}^3$$

EXAMPLE 6:

Find the volume. Use 3.14 for pi.



$$V = \frac{1}{3}Bh$$

$$V = \frac{1}{3}(\pi r^2)h$$

$$V = \frac{1}{3}(3.14)(4.2\text{in})^2(8\text{in})$$

$$V = 147.7\text{yd}^3$$

VOLUME OF PYRAMIDS & CONES

FORMULA(S)

Rectangular Prism

$$SA = 2bh + 2bw + 2hw$$

Triangular Prism

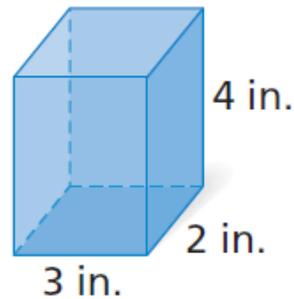
$$SA = Ph + 2B$$

Cylinder

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

EXAMPLE 7:

Find the surface area.



$$SA = 2bh + 2bw + 2hw$$

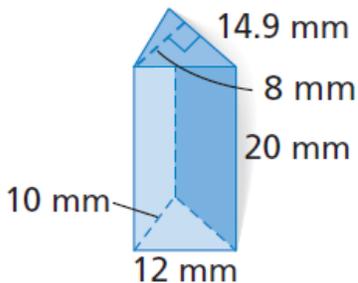
$$SA = 2(3)(4) + 2(3)(2) + 2(4)(2)$$

$$SA = 24 + 12 + 16$$

$$SA = 52 \text{ in}^2$$

EXAMPLE 8:

Find the surface area.



$$SA = Ph + 2B$$

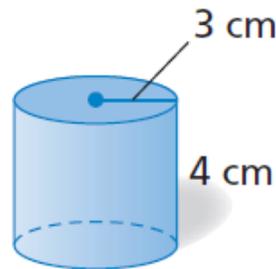
$$SA = (10+12+14.9)(20) + 2\left(\frac{1}{2}\right)(14.9)(8)$$

$$SA = 738 + 119.2$$

$$SA = 857.2 \text{ mm}^2$$

EXAMPLE 9:

Find the surface area. Use 3.14 for pi.



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

$$SA = 2(3.14)(3)^2 + 2(3.14)(3)(4)$$

$$SA = 56.52 + 75.36$$

$$SA = 131.88 \text{ cm}^2$$

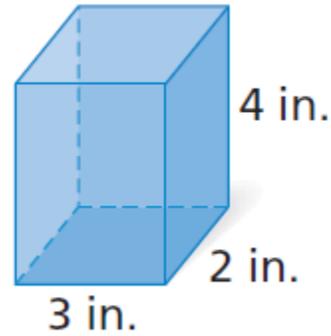
3-D Geometry

(Volume & Surface Area)

Formula(s):

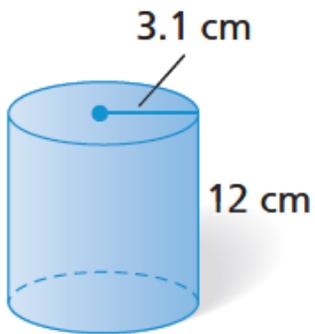
Example 1:

Find the volume.



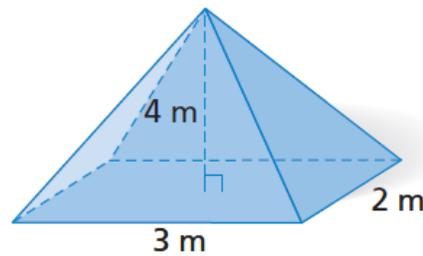
Example 15:

Find the approximate volume in square inches.



Example 16:

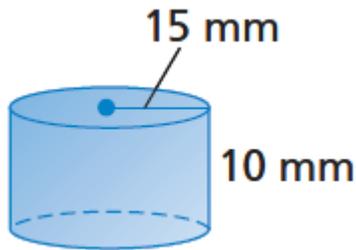
Find the approximate volume in cubic feet.



Measurement in 3-D Figures

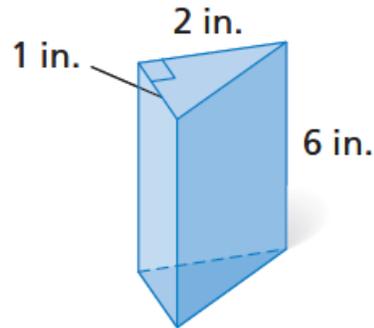
Example 13:

Find the approximate surface area in square inches.



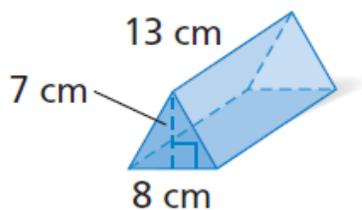
Example 14:

Find the approximate volume in cubic centimeters.



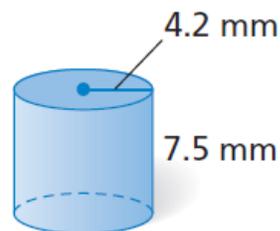
Example 2:

Find the volume.



Example 3:

Find the volume. Use 3.14 for pi.

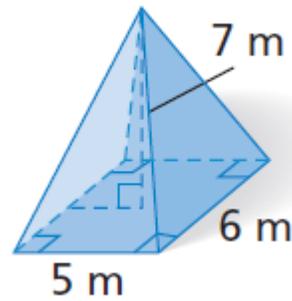


Volume of Prisms & Cylinders

Formula(s)

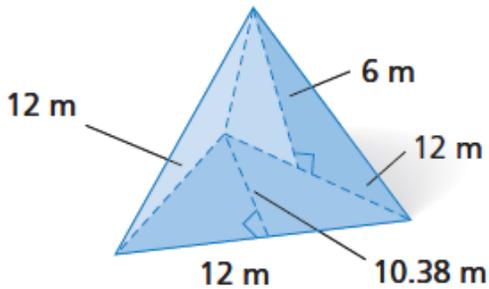
Example 4:

Find the volume.



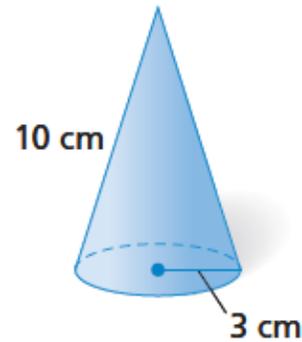
Example 11:

Find the surface area.



Example 12:

Find the surface area. Use 3.14 for pi.

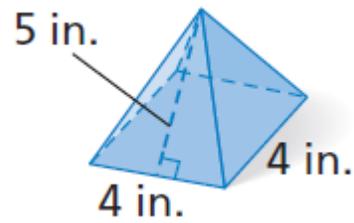


Surface Area of Pyramids & Cones

Formula(S)

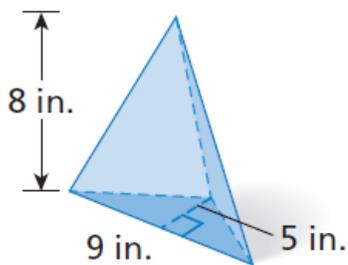
Example 10:

Find the surface area.



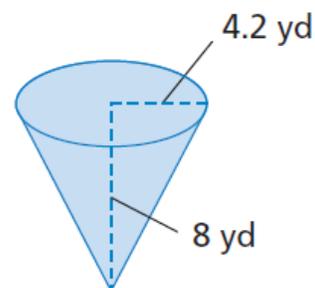
Example 5:

Find the volume.



Example 6:

Find the volume. Use 3.14 for pi.

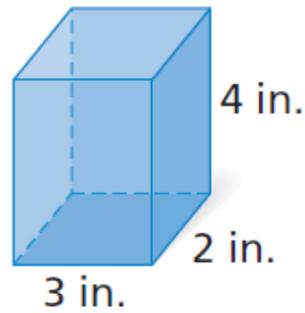


Volume of Pyramids & Cones

Formula(s)

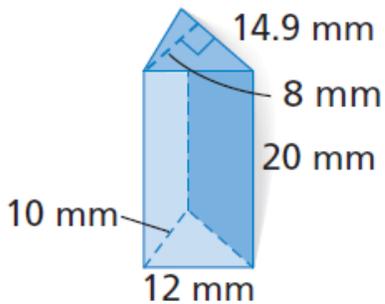
Example 7:

Find the surface area.



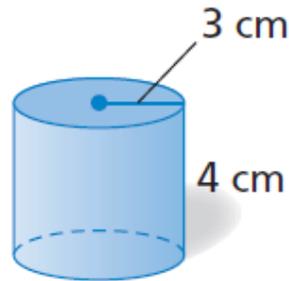
Example 8:

Find the surface area.



Example 9:

Find the surface area. Use 3.14 for pi.



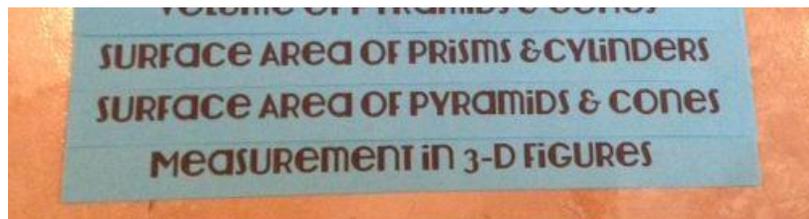
Surface Area of Prisms & Cylinders

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Directions:

Step 1: Print pages 1&2, 3&4, 5&6 front to back so that the prints are facing in opposite directions.

Step 2: Line up the pages as shown below.



Step 3: Fold over the top half and secure with staples.

The final product should look like this:

