3-d geometry lesson.notebook

8.3 - 8.7 Volume and Surface Area of 3-D Shapes

Volume - the amount of space within an object.

Surface Area - the number of square units needed to cover the exterior of an object.

Capacity - the amount (volume) a container can hold.

Simple Conversions -

1 litre = 1000ml - Liquid example (milk)
1 litre = 1000cm^3 - Solid example (sand)
1ml = 1cm^3

Dec 1-6:44 PM

3 - D Shapes

Prism	Pyramid	Cylinder	Cone	Sphere

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Use your formula sheet to complete the following questions based on 3-D shapes.
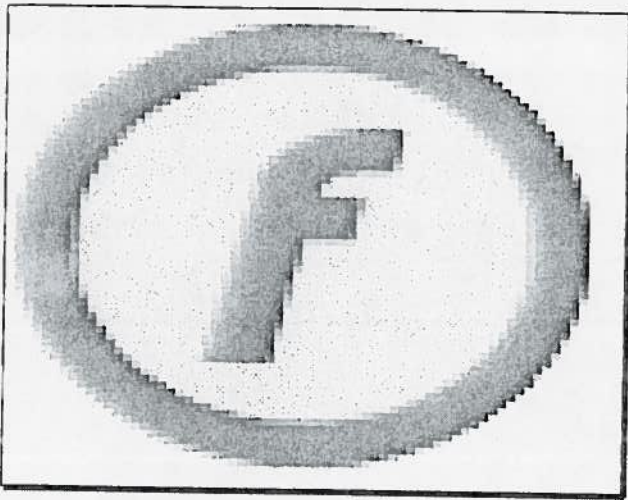
pp 441   #'s 1a, 2a, 5, 6   pp 442 # 7
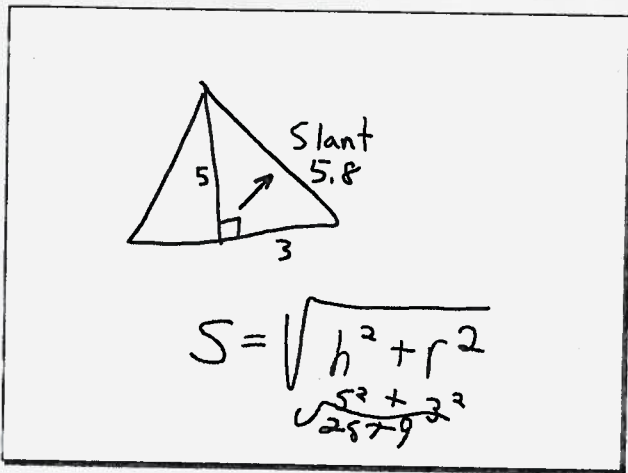
pp 447   #'s 1b, 2   pp 454 #'s 1b, 3
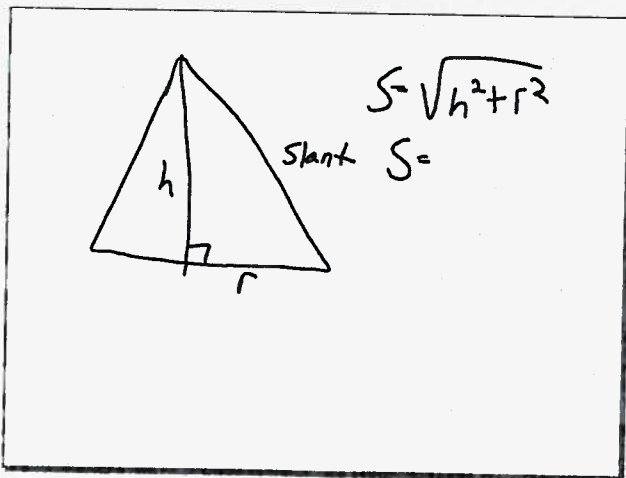
pp 459   #'s 1b, 4   pp 465 # 1b

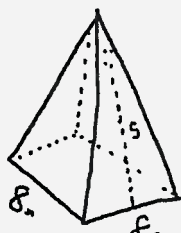pp 466 # 7

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Slant
5.8
5
3

$$S = \sqrt{h^2 + r^2}$$

$$\sqrt{\frac{5^2 + 3^2}{25 + 9}}$$

Dec 2-9:33 AM

$S = \sqrt{h^2 + r^2}$

Slant $S =$

h

r

Dec 2-9:35 AM

$h = 5cm$

S.A = Sum of all sides

S.A $_\square$ = 8×8 = $64 cm^2$

S.A $_\triangle$ = $\frac{8 \times 5}{2} \times 4$ =

$20 \times 4 = 80 cm^2$

S.A = $80 m^2 + 64 m = 144 cm^2$
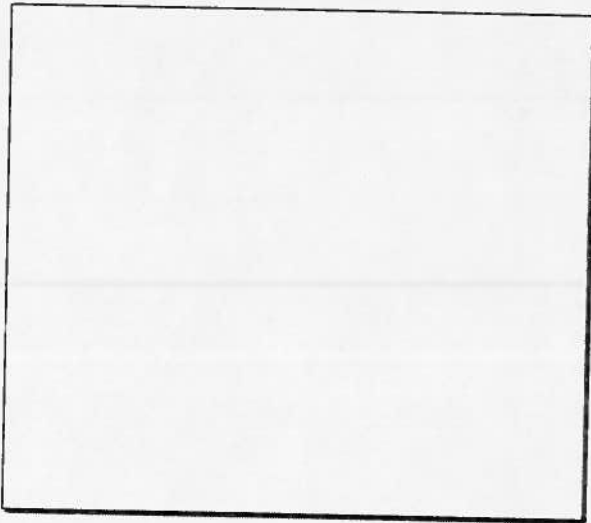
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Dec 9-12:08 PM

Volume of Prisms and Pyramids

Date: _____

Where necessary, round your answers to one decimal place.

1. Find the volume of each prism.

   Area of base = length × width

   A = _____cm × _____cm

   = _____

   The area of the base is _____.

   Volume = area of base × height

   V = _____cm² × _____cm

   = _____

   The volume of the prism is _____.

   Diagram: rectangular prism labeled 12 cm, 15 cm, 85 cm
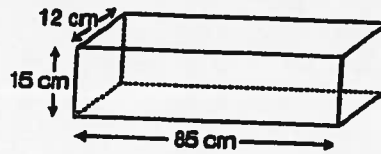
2. Find the volume of the prism.

   Area of triangular face (or base) = $\frac{1}{2}bh$
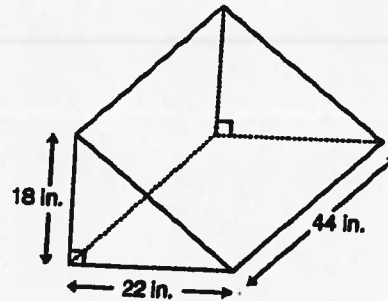
   A = $\frac{1}{2}$(_____in.)(_____in.)

   = _____

   The area of the triangular face is _____.

   Volume = area of base × height

   V = _____in.² × _____in.

   = _____

   The volume of the prism is _____.

   Diagram: triangular prism labeled 18 in., 22 in., 44 in.

3. Find the volume of the pyramid.

   Area of base = length × width

   A = _____ft × _____ft

   = _____
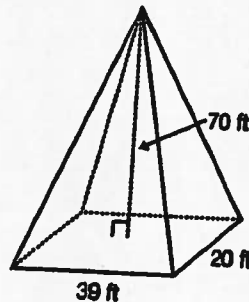
   The area of the base is _____.

   Volume of pyramid = $\frac{1}{3}$ area of base × height

   V = $\frac{1}{3}$(_____ft²)(_____ft)

   = _____

   The volume of the pyramid is _____.

   Diagram: pyramid labeled 70 ft, 39 ft, 20 ft

Volume of Prisms and Pyramids

Date: _____
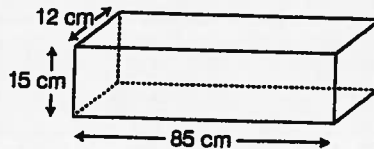
Where necessary, round your answers to one decimal place.

1. Find the volume of each prism.

   Area of base = length × width

   A = __85__ cm × __12__ cm

     = __1020__ cm²

   The area of the base is __1020 cm²__ .

   Volume = area of base × height

   V = __1020__ cm² × __15__ cm

     = __15300__ cm³

   The volume of the prism is __15300 cm³__ .

2. Find the volume of the prism.
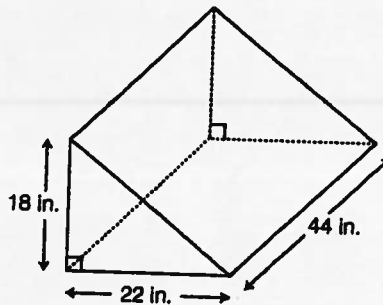
   Area of triangular face (or base) = $\frac{1}{2}bh$

   A = $\frac{1}{2}$(__18__ in.)(__22__ in.)

     = __198__ in²

   The area of the triangular face is __198 in²__ .

   Volume = area of base × height

   V = __198__ in.² × __44__ in.

     = __8712__ in²

   The volume of the prism is __8712 in²__ .

3. Find the volume of the pyramid.

   Area of base = length × width

   A = __39__ ft × __20__ ft

     = __780__ ft²

   The area of the base is __780 ft²__ .

   Volume of pyramid = $\frac{1}{3}$ area of base × height

   V = $\frac{1}{3}$ (__780__ ft²)(__70__ ft)

     = __18 200__ ft³

   The volume of the pyramid is __18 200 ft³__ .