

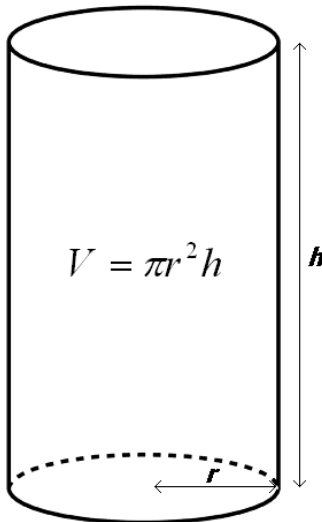
## MFM1P – Volume Assignment

*Eureka! Eureka! Eureka!*

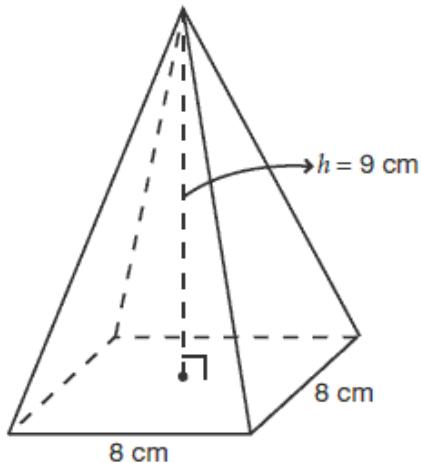
Use scientific problem solving thinking strategies to resolve the following problems:

- Step 1: I make a list of what I know and what I don't know. (1 point)  
Step 2: I make a diagram (if necessary).  
Step 3: I state appropriate relationships (usually on your formulae sheet) (1 point)  
Step 4: I use algebra to isolate the unknown variable (if necessary). (1 point)  
Step 5: I plug in the known variables and evaluate the problem. (1 point)  
Step 6: I state the unknown variable's value with proper units. (1 point)

1. Given the cylinder below, find the volume given the height is  $h = 20\text{cm}$  and the radius is  $r = 6.5\text{cm}$ . Show all your work. (4 marks)

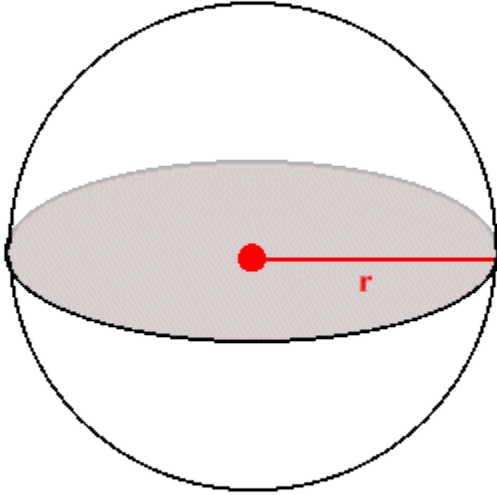


2. Given the pyramid below, find the volume given the illustrated dimensions: (4 marks)

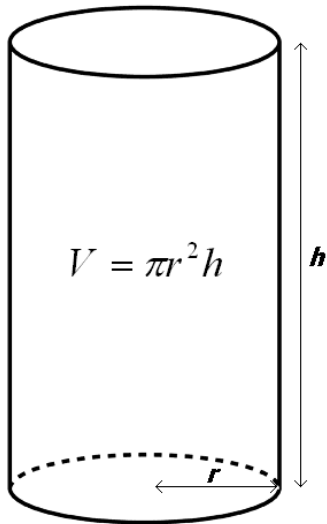


3. Find the volume of the sphere given that the radius is  $r = 10.5\text{cm}$ . (4 marks)

$$V = \frac{4\pi r^3}{3}$$

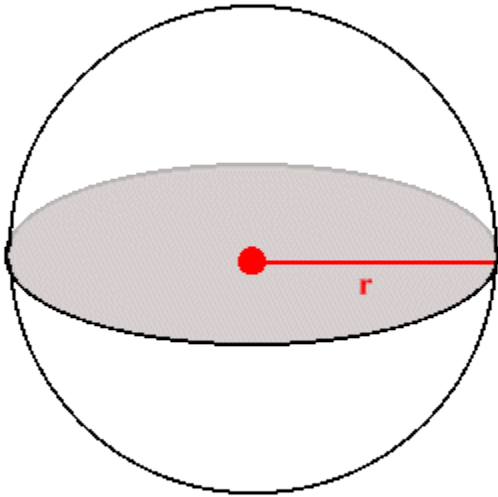


4. Given the cylinder below, find the height given that the volume is  $V = 4520\text{m}^3$  and the radius is  $r = 43\text{ m}$ . Show all your work. (5 marks)

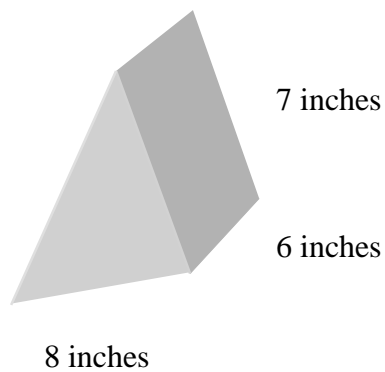


5. Find the radius of the sphere given that the volume is  $V = 9839 \text{ cm}^3$ . (4 marks)

$$V = \frac{4\pi r^3}{3}$$



6. Find the volume of the following triangular prism given the dimensions below. Show all your work. (4 marks)



7. A waffle ice cream cone is shown below. The waffle cone has a height of  $h = 9.18\text{cm}$  and has a diameter of  $d = 4.5\text{cm}$ . The scoop of ice cream makes a perfect semi-sphere (half a sphere). What is the volume of ice cream in and out of the cone? Refer to equation sheet. (6 marks)



8. A new grain storage facility has been constructed such that the dimensions are shown below. Find the maximum volume of grain that can be stored. (6 marks)

