

1. Jaime has a drinking glass in the shape of a cylinder. The radius of the base of the glass is 5 cm, and the height is 12 cm.
  - a) If the glass were full of water, what would be the volume of water in the glass?  
 (Note:  $V = \text{_____}$ )
  - b) If the height of the water in the glass were 7 cm, what would be the volume of water in the glass?
  - c) Complete the following table.

Height of Water (cm)	Volume of Water (cm <sup>3</sup> )	First Difference
2		
4		
6		
8		
10		

- d) Based on the chart above, would you say that the data is linear or non-linear? Explain your answer.
  - e) When the graph is drawn, should the points be connected or not? Why is this choice most appropriate for this data?
  - f) Draw a fully labelled graph of the height of water versus the volume of water in Jaime's glass.
2. Calculate the surface area and the volume of the following:
    - a) Rectangular prism of height 3 m, width 12 m and length 10 m.
    - b) Cylinder of height 8 cm, diameter of base 12 cm.
    - c) Cone of height 16 m and radius of the base 5 m.
  3. If the height of a rectangular prism is 10 cm, the width is 22 cm and the volume is 380 cm<sup>3</sup>, find the length, rounded to one decimal place.
  4. If the height of a cylinder with volume 58 m<sup>3</sup> is 8 m, find the radius to one decimal place.

**Answers:**

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1. a) 942.48 cm<sup>3</sup>                      b) 549.78 cm<sup>3</sup>  
 2. a) 360 m<sup>3</sup>                      b) 904.78 cm<sup>3</sup>                      c) 418.88 cm<sup>3</sup>                      3. 1.7 cm                      4. 1.52 m