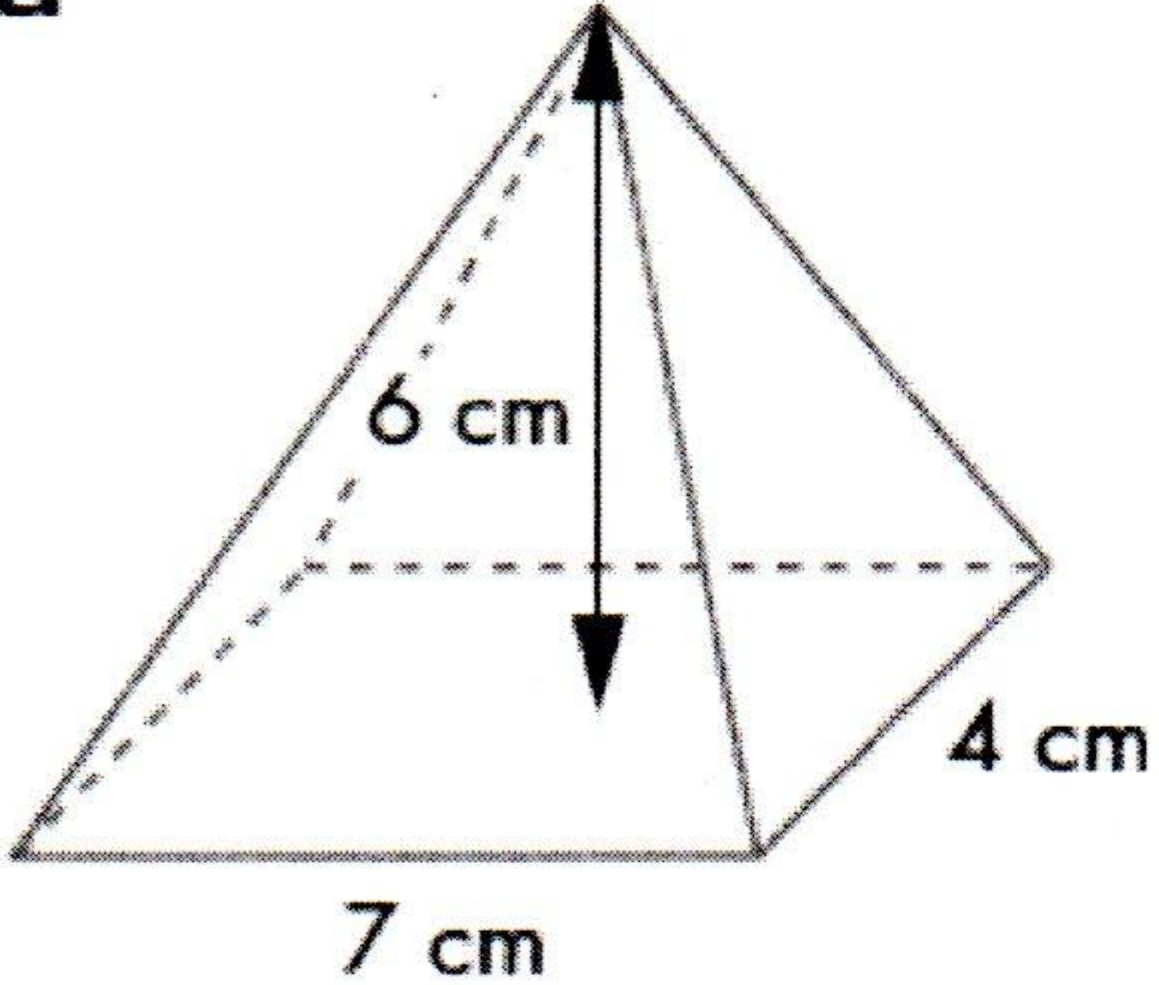
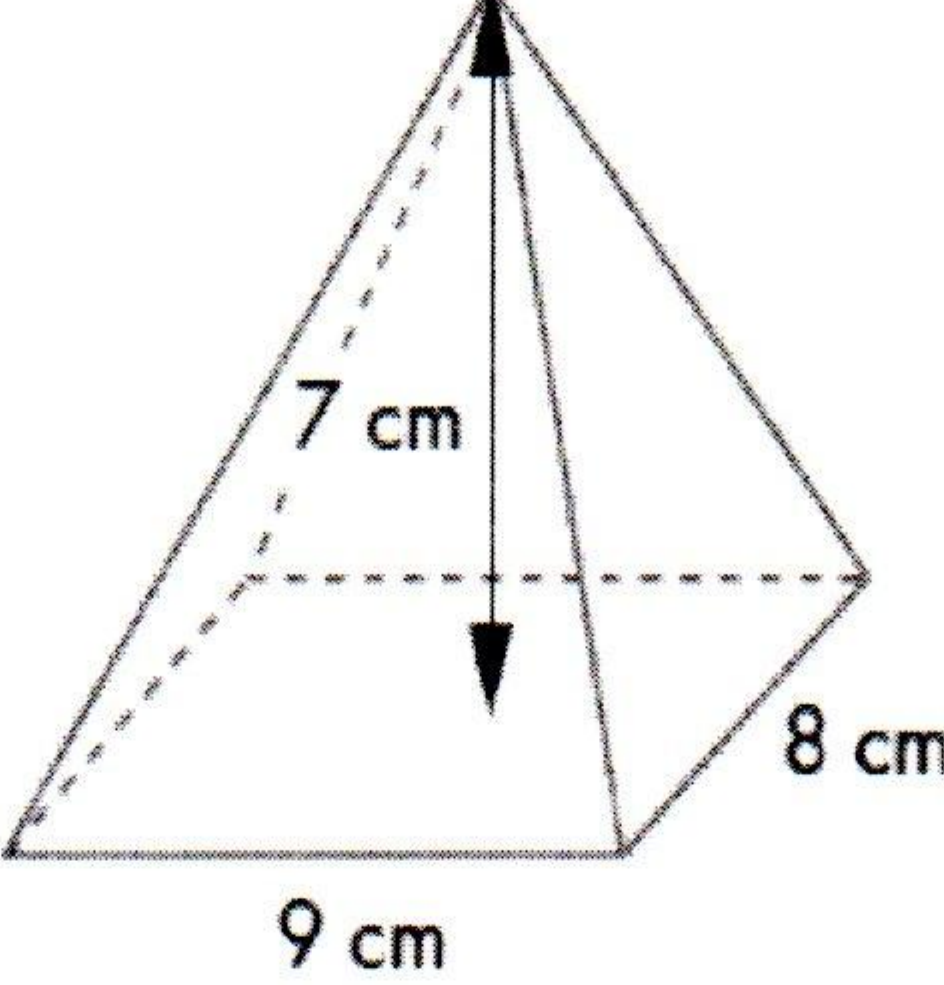
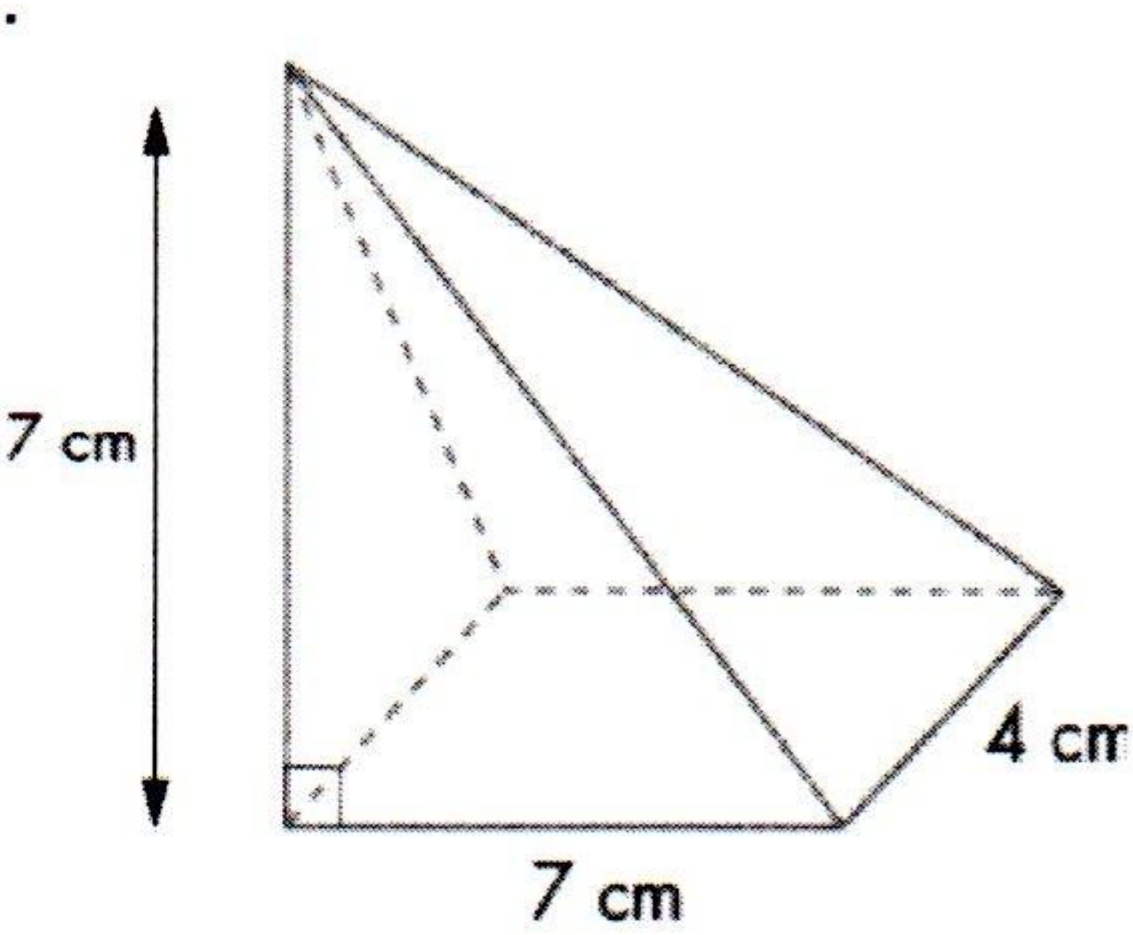
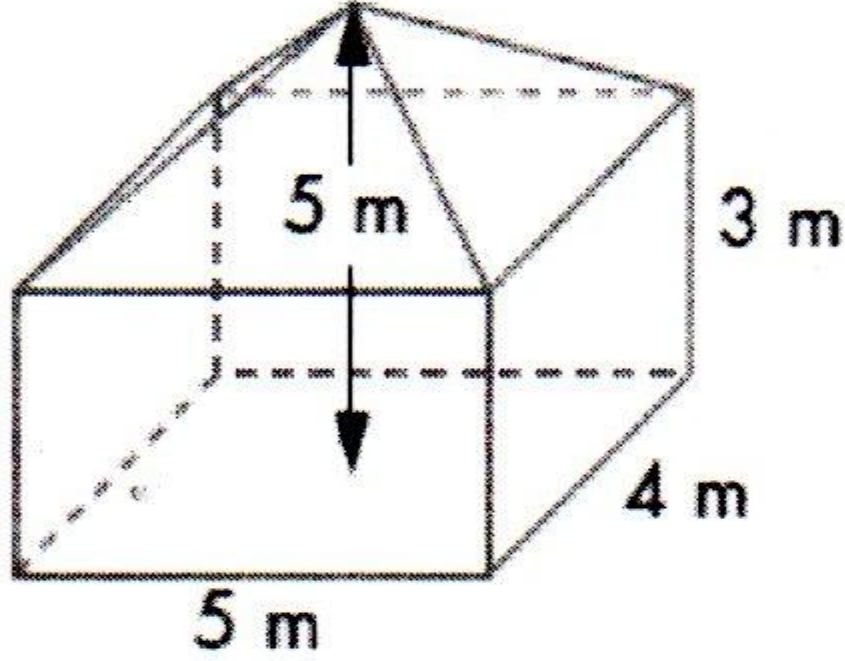
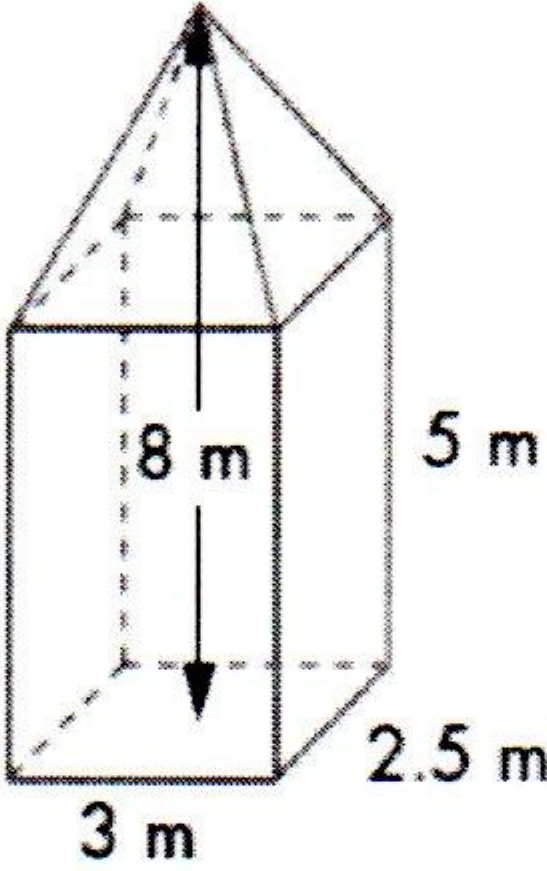
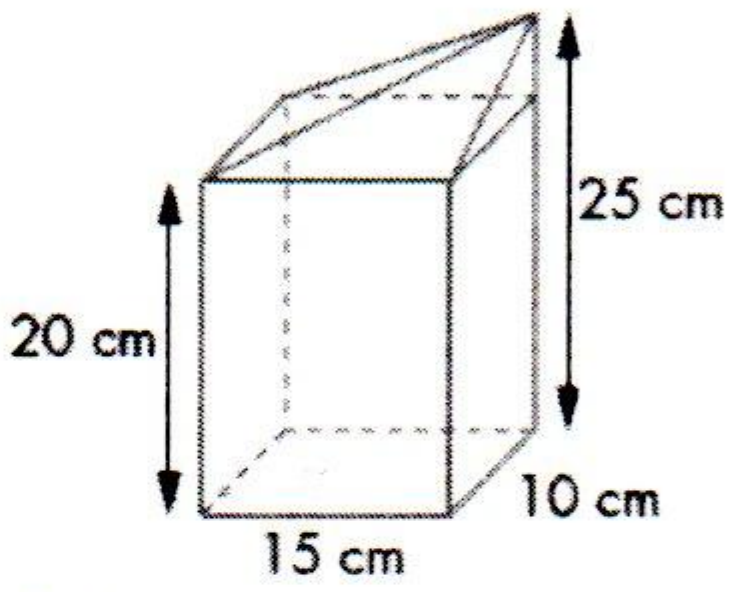


Area and volume of the pyramid and cone

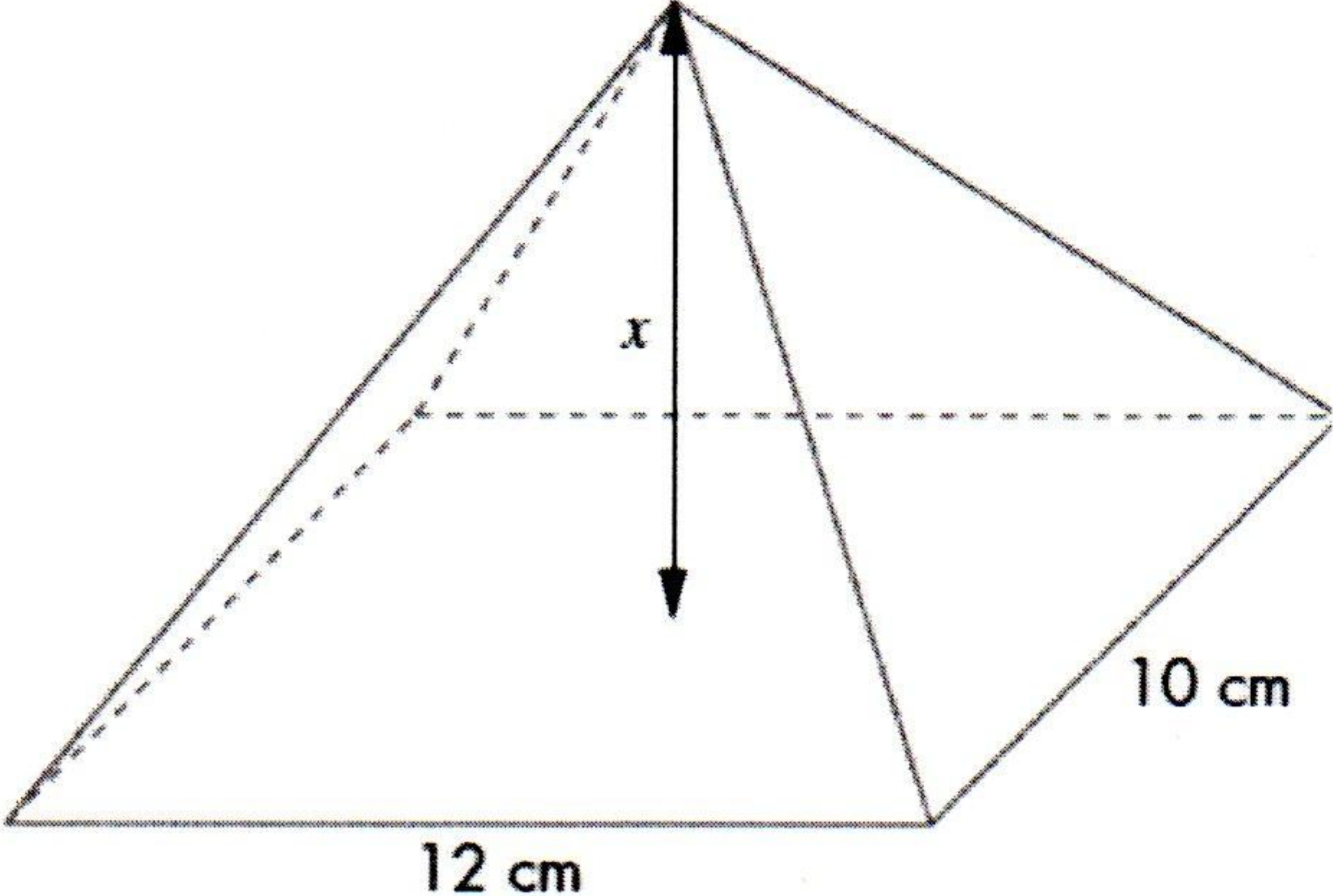
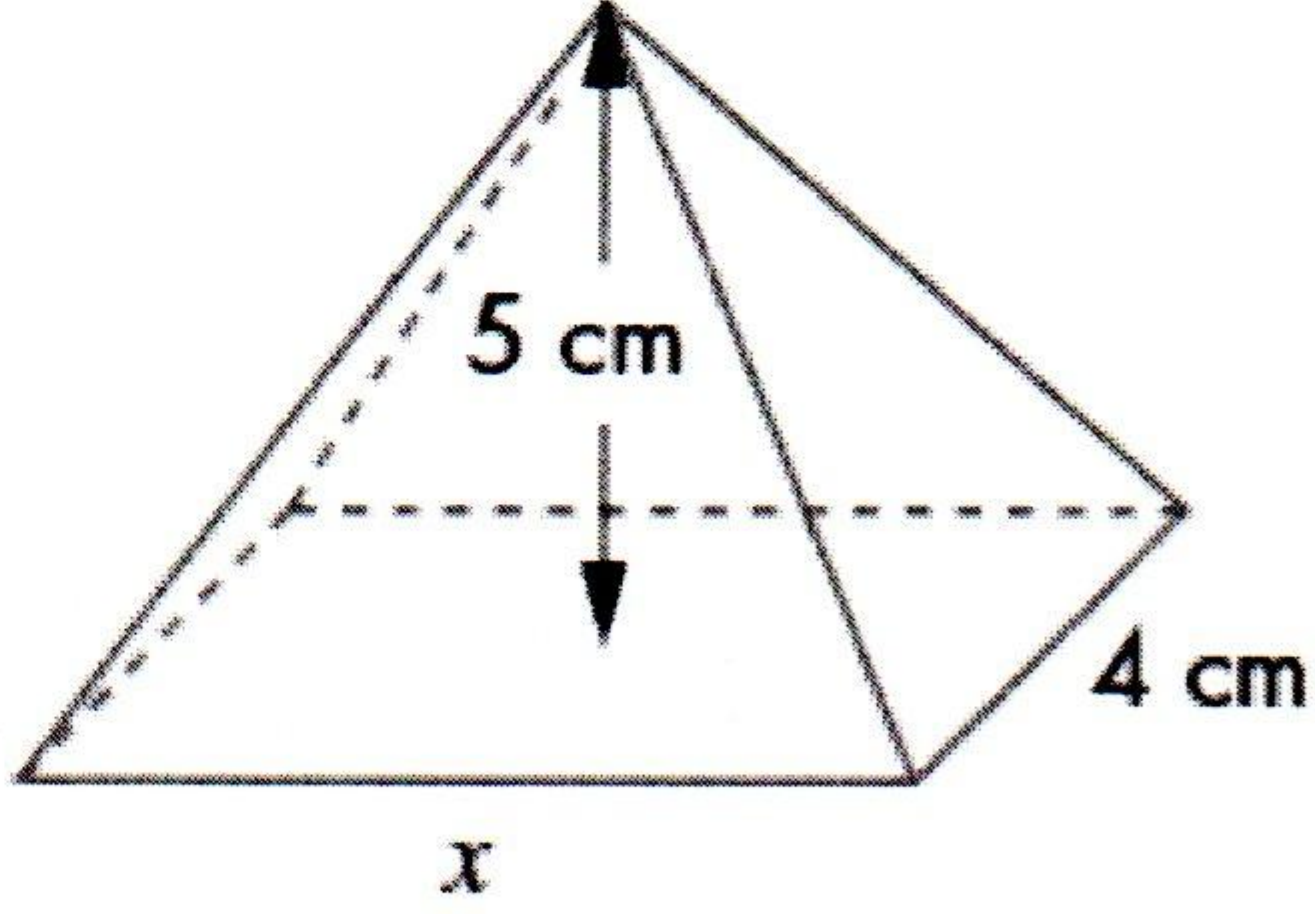
Q1. Calculate the mass of each of these pyramids, all with rectangular bases.

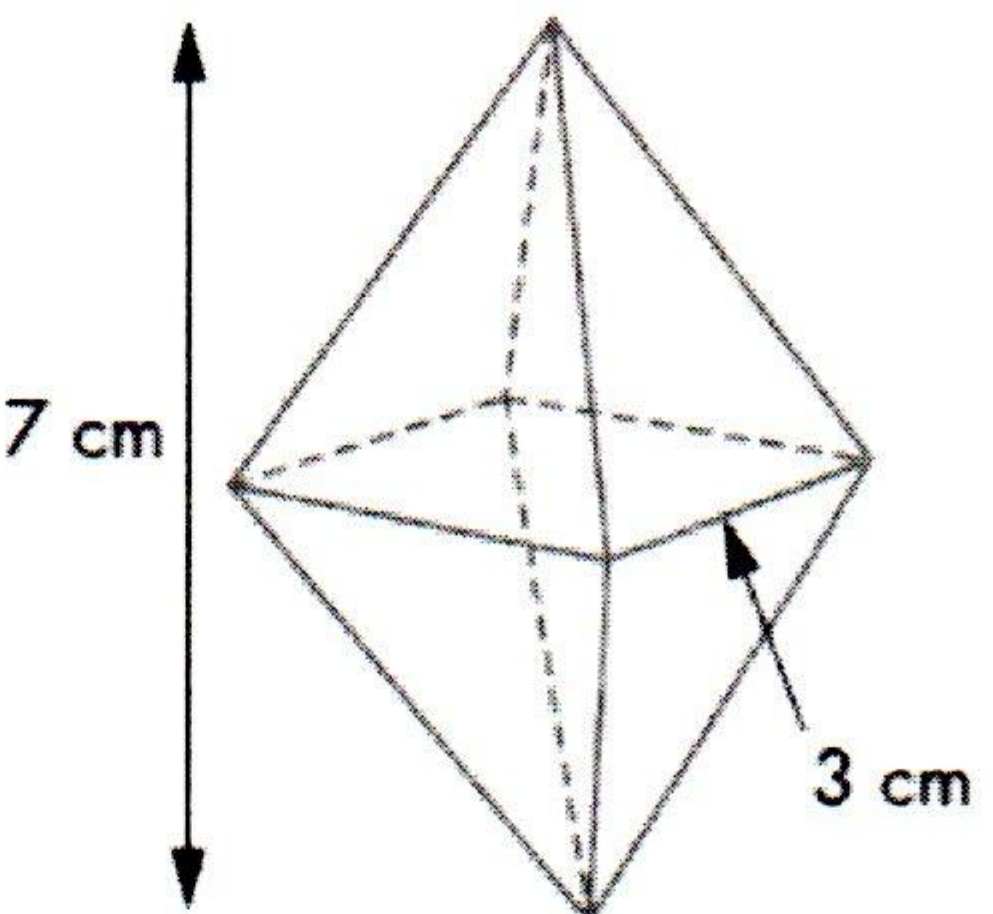
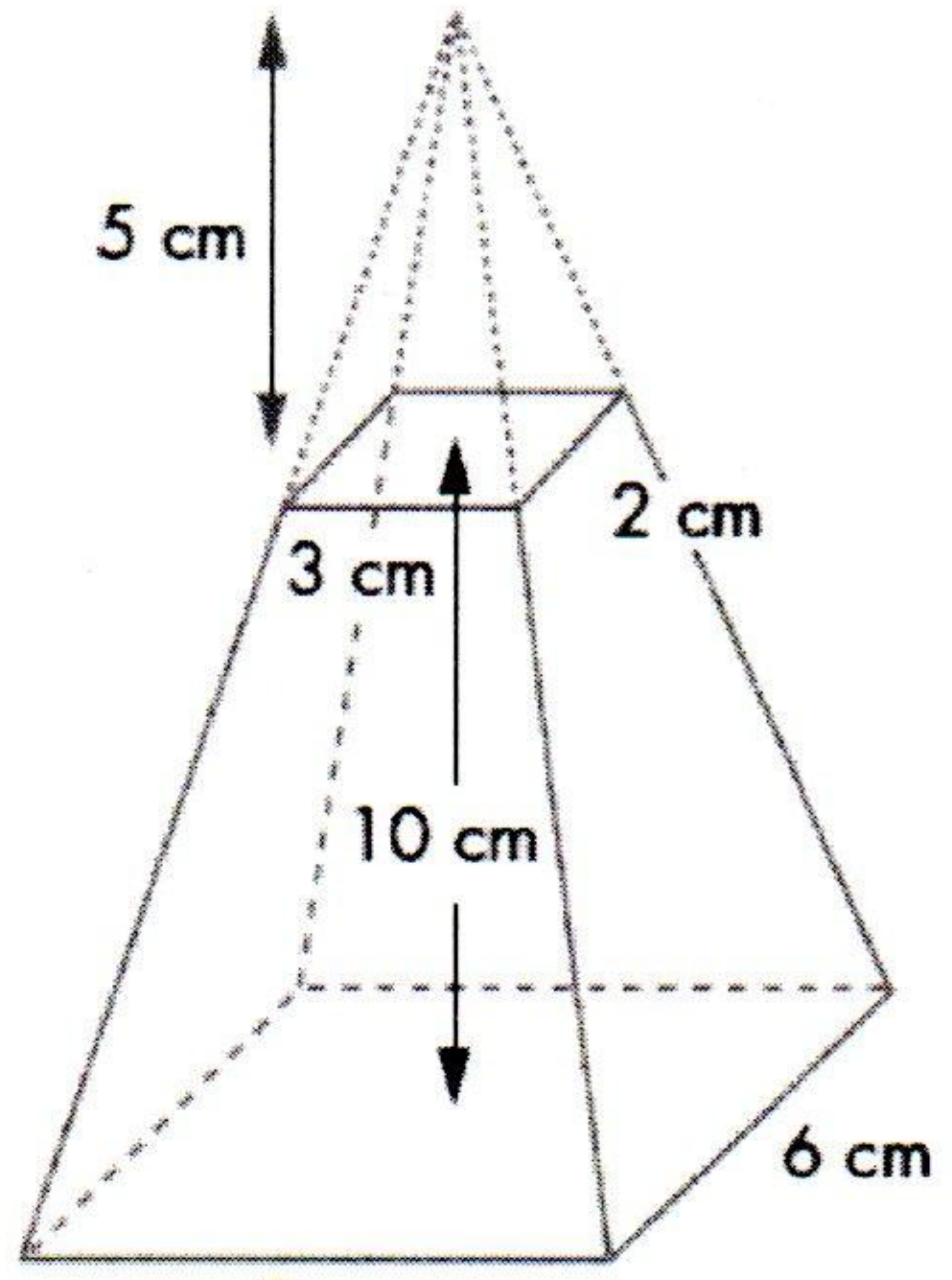
| | | |
|--|---|---|
| <p>a</p>  <p>Density= 6.8 g/cm³</p> <p>Mass =</p> | <p>b</p>  <p>Density= 2.9 g/cm³</p> <p>Mass =</p> | <p>c.</p>  <p>Density= 7.6 g/cm³</p> <p>Mass =</p> |
|--|---|---|

Q2. Calculate the volume of each of these shapes.

| | | |
|--|---|--|
| <p>a)</p>  <p>Volume =</p> | <p>b)</p>  <p>Volume =</p> | <p>c)</p>  <p>Volume =</p> |
|--|---|--|

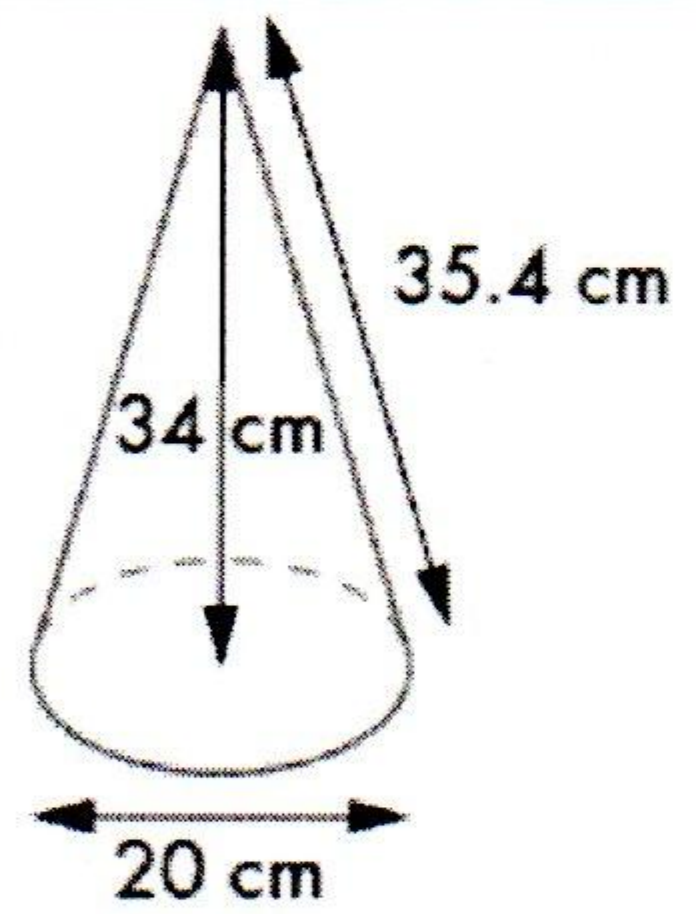
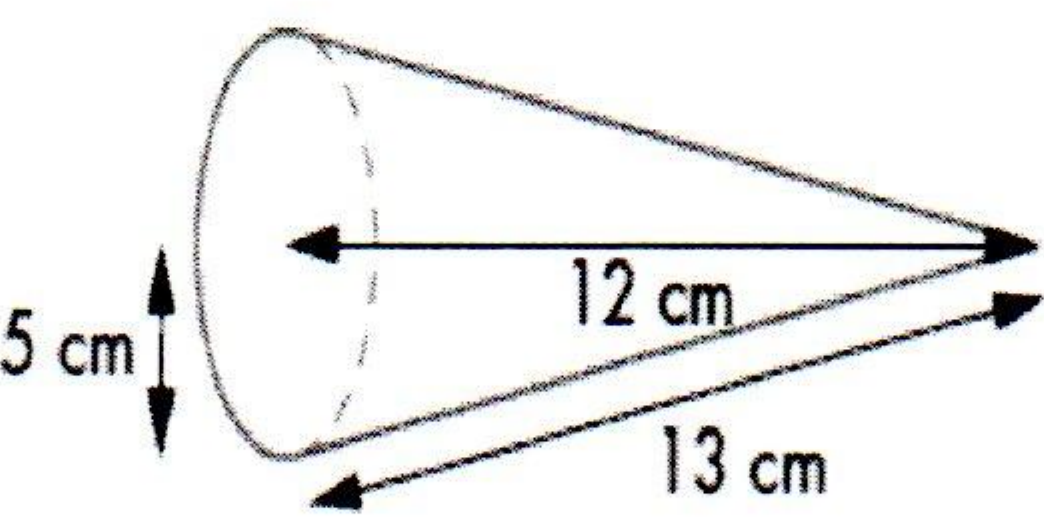
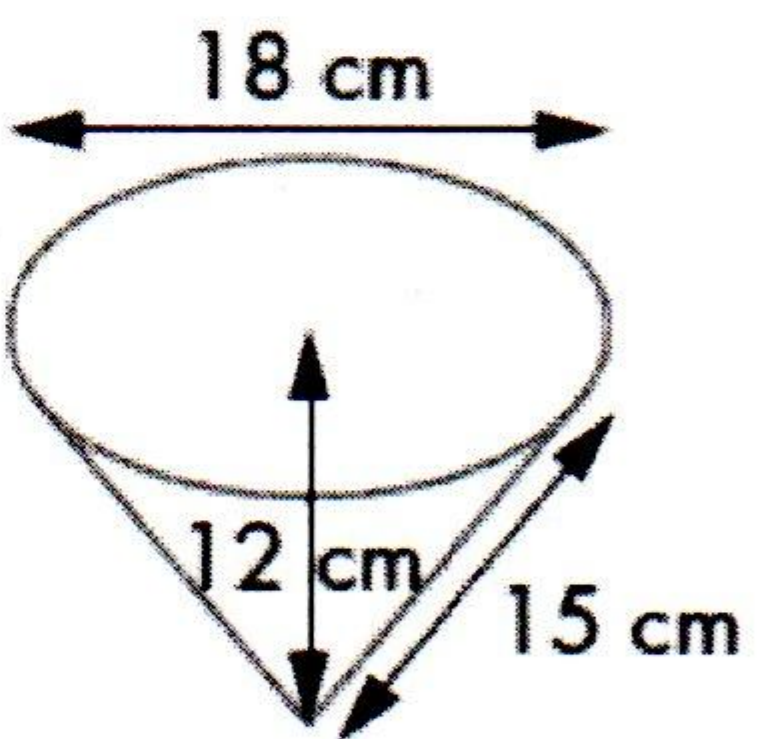
Calculate the length x in each of these rectangular-based pyramids.

| | |
|--|---|
| <p>Q3.</p>  <p>Weight 625 g Density 3.1g/cm³</p> <p>x=</p> | <p>Q4. .</p>  <p>Weight 270 g Density 6.8 g/cm³</p> <p>x=</p> |
|--|---|

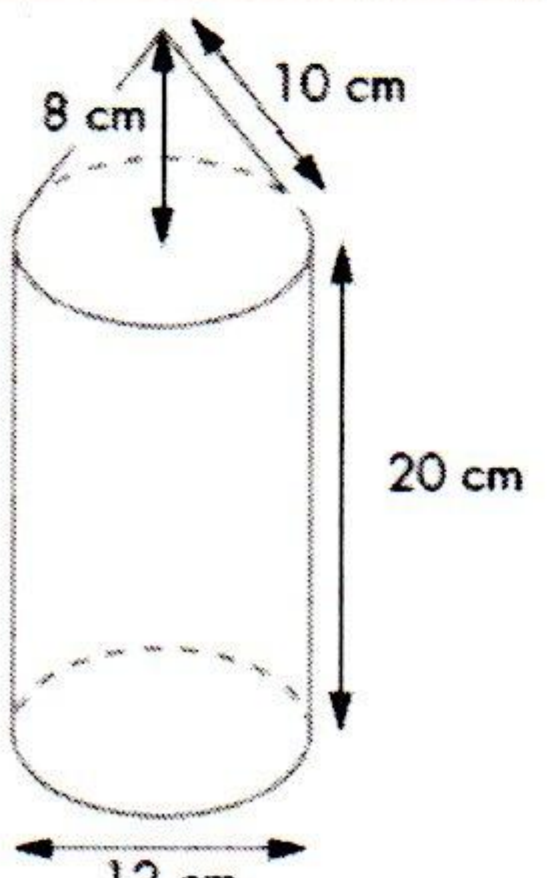
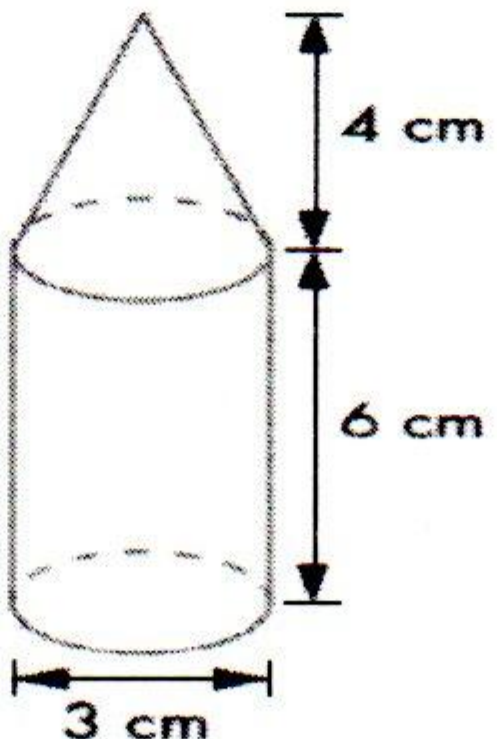
| | |
|--|--|
| <p>Q5 . A crystal is in the form of two square-based pyramids joined at their bases (see diagram). The crystal has a mass of 31.5 grams. What is its density?</p> |  |
| <p>Q6 . The pyramid in the diagram has its top 5 cm cut off as shown. The shape which is left is called a frustum. Calculate the volume of the frustum. 5 cm</p> |  |

Q7 . For each cone, calculate
i its volume and
Give your answers to 3 significant

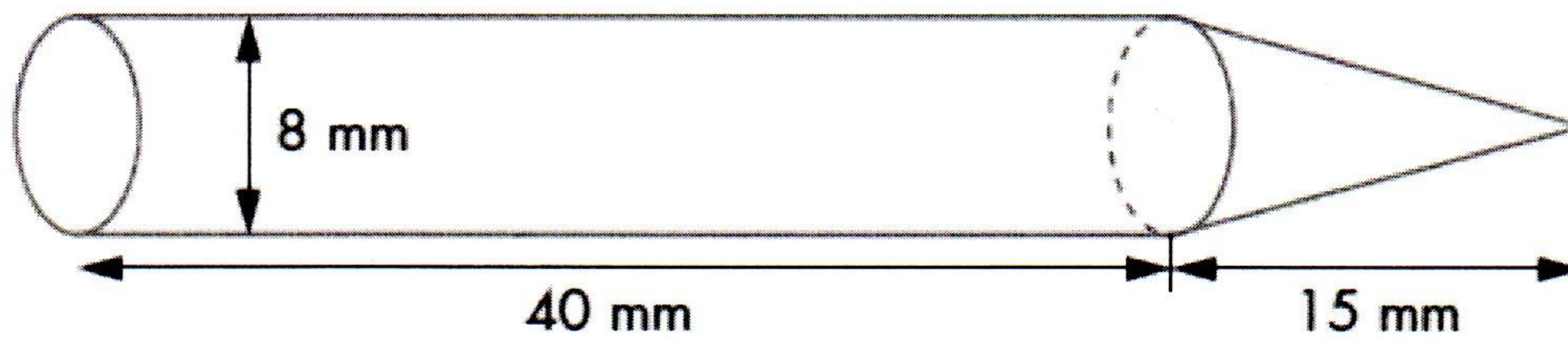
ii its total surface area.

| | | |
|---|--|---|
| <p>a</p>  <p>Volume =</p> <p>TSA=</p> | <p>b</p>  <p>Volume =</p> <p>TSA=</p> | <p>c</p>  <p>Volume =</p> <p>TSA=</p> |
|---|--|---|

Q8 . Calculate the volume and the total surface area of each of these shapes. Give your answers in terms of π .

| | | | |
|---|--------------------------------------|---|--------------------------------------|
| <p>a</p>  | <p>Volume=_____</p> <p>TSA=_____</p> | <p>b</p>  | <p>Volume=_____</p> <p>TSA=_____</p> |
|---|--------------------------------------|---|--------------------------------------|

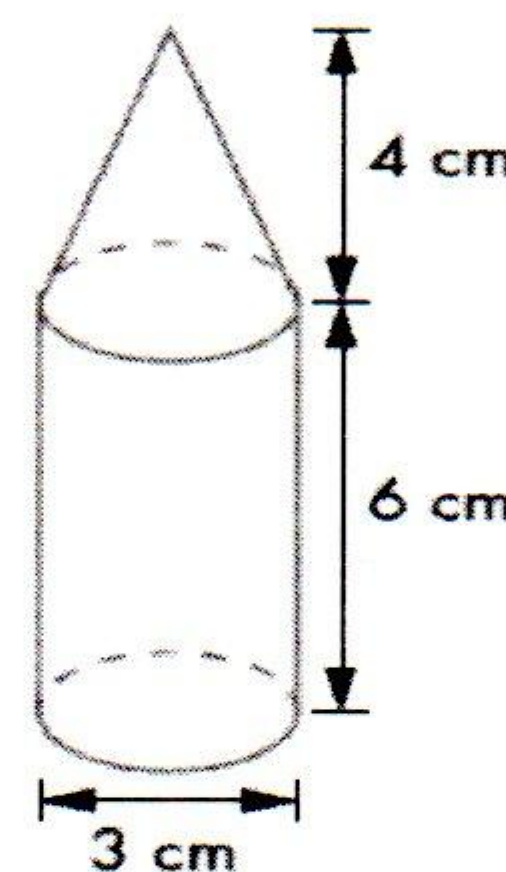
Q9 . The model shown on the below is made from metal.
What is the mass of the model, given that the density of metal is 2.6 g/cm^3 ?



Q10. A solid cone, base radius 8 cm and vertical height 10 cm, is made of metal whose density is 5.1 g/cm^3 . Find the mass of the cone.

Q11. Find the total surface area of a cone whose base radius is 7 cm and slant height is 15 cm.

Q12. The model shown on the right is made from aluminium.
What is the mass of the model, given that the density of aluminium is 2.7 g/cm^3 ?



Q13. A container in the shape of a cone, base radius 10 cm and vertical height 19 cm, is full of water. The water is poured into an empty cylinder of radius 15 cm. How high is the water in the cylinder?

Q14. The diagram shows a child's toy.
The toy is made from a cone on top of a hemisphere.
The cone and hemisphere each have radius 7 cm.
The total height of the toy is 22 cm.
Work out the volume of the toy.
Give your answer correct to 3 significant figures.

