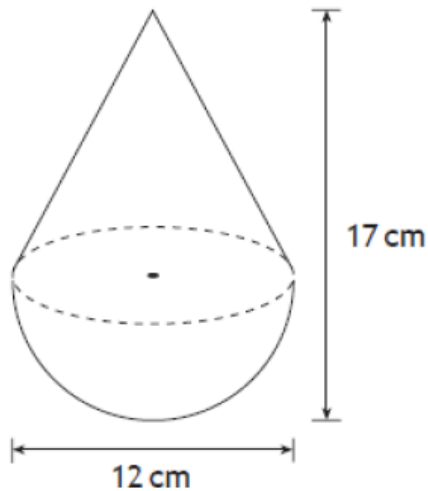


Nat 5 Calculator Past Paper Questions

(Including Percentages, Volume, Straight line, Surds, Scientific Notation, Brackets, Equations, Factorising, Simultaneous Equations)

1. A child's toy is in the shape of a hemisphere with a cone on top as shown in the diagram.



The toy is 12 centimetres wide and 17 centimetres high.

Calculate the volume of the toy.

Give your answer correct to 2 significant figures. (4 marks)

2. There are 964 pupils on the roll of Aberleven High School.

It is forecast that the roll will decrease by 15% per year.

What will be the expected roll after 3 years?

Give your answer to the nearest ten. (3 marks)

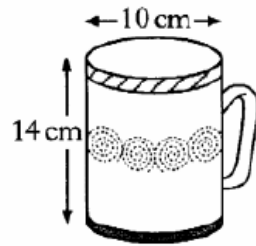
3. There are  $3 \times 10^5$  platelets per millilitre of blood.

On average, a person has 5.5 litres of blood.

On average, how many platelets does a person have in their blood?

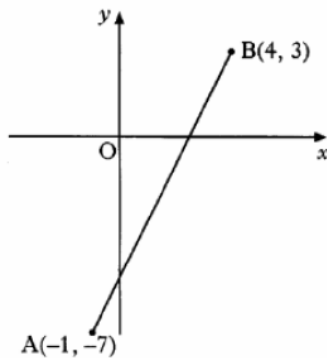
Give your answer in scientific notation. (2 marks)

4. A mug is in the shape of a cylinder with a diameter 10 centimetres and height 14 centimetres.



- (a) Calculate the capacity of the mug. (2 marks)
- (b) 600 millilitres of coffee are poured in.  
Calculate the depth of the coffee in the mug. (3 marks)

6. In the diagram below,  $A$  is the point  $(-1, -7)$  and  $B$  is the point  $(4, 3)$ .



- (a) Find the gradient of the line  $AB$ . (1 mark)
- (b)  $AB$  cuts the  $y$ -axis at the point  $(0, -5)$ .  
Write down the equation of the line  $AB$ . (2 marks)
- (c) The point  $(3k, k)$  lies on  $AB$ . Find the value of  $k$ . (2 marks)