National 5 Past Paper Homework 3

Paper 1 (non-calculator)

1. Evaluate

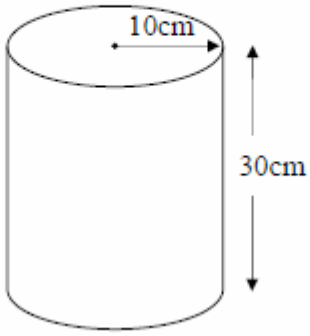
$$2\frac{1}{3} + \frac{4}{5} \text{ of } 1\frac{3}{7}$$

3

2. Factorise $2x^2 + 3x - 5$

2

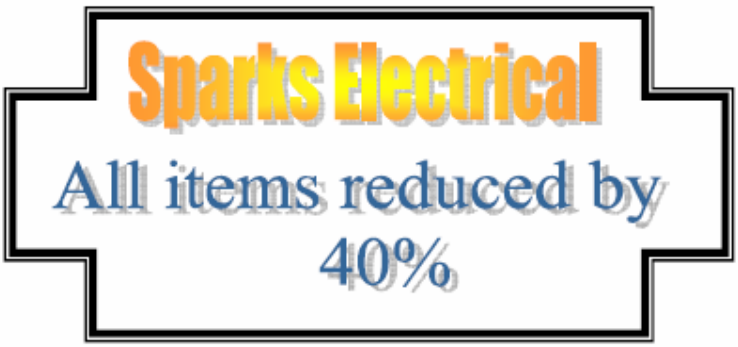
3. A water container in the shape of a cylinder with radius 10 centimetres and height 30 centimetres is shown below. [diagrams are not drawn to scale]



Calculate the volume of the cylinder, in cm^3, giving your answer **correct to 1 significant figure**. [take $\pi = 3 \cdot 14$]

3

4. Sparks Electrical are having their annual clearance sale where everything is reduced by 40%.



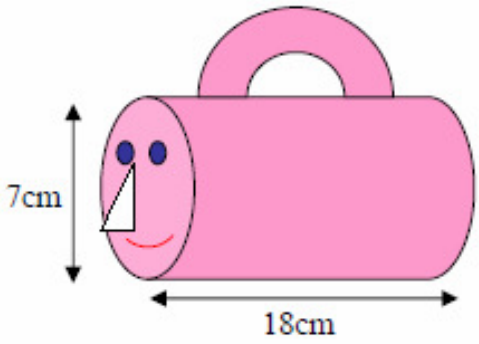
A Flat screen TV cost £480 in the sale.

How much did the TV originally cost?

3

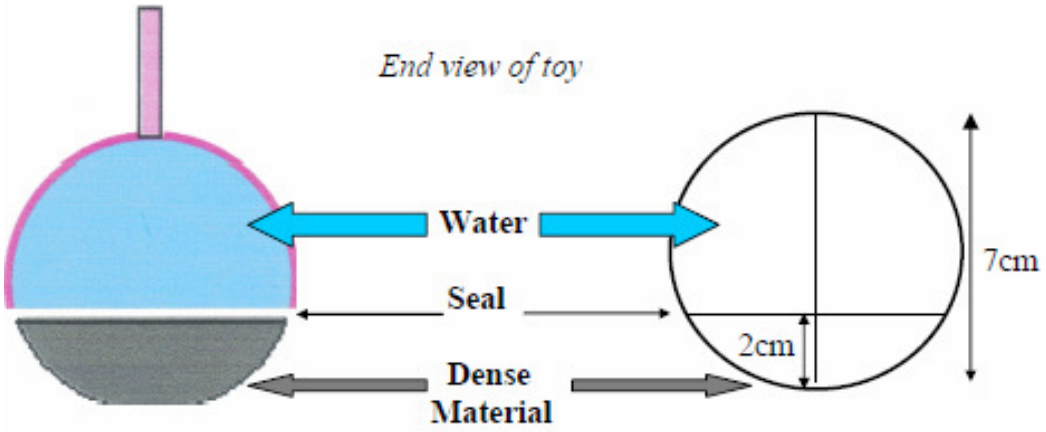
Paper 2 (Calculator)

1. Shown is a children's swimming toy consisting of a plastic cylinder connected to a handle.



The toy is thrown into deep water where it sinks and the swimmer is then encouraged to retrieve it.

To make it easy to pick up, the cylinder is weighted on the underside with a dense material and the upper part filled with water. The 2 sections are separated by a plastic seal.



The cylinder has a diameter of 7cm and length 18cm. The depth of the dense material is 2cm.

Calculate the area of seal required to keep the two substances separate. **5**

2. The Stockholm Globe Arena is the largest hemispherical building in the world.
The radius of the building is 110m.
Calculate the volume of the building in cubic metres, giving your answer in scientific notation correct to 3 significant figures.

[$Volume(sphere) = \frac{4}{3}\pi r^3$, where r is the radius.] **4**