



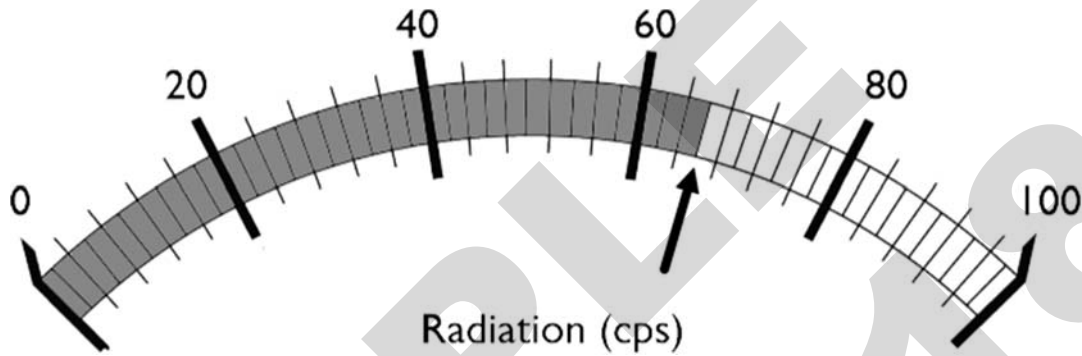
Attempt ALL questions

MARKS

DO NOT
WRITE IN
THIS
MARGIN

1. A machine is used to measure radiation. The units of the reading are 'cps'.

An item is tested for radiation. The diagram below shows the reading on the machine.



If the reading is over 65cps, the item is classed as dangerous.

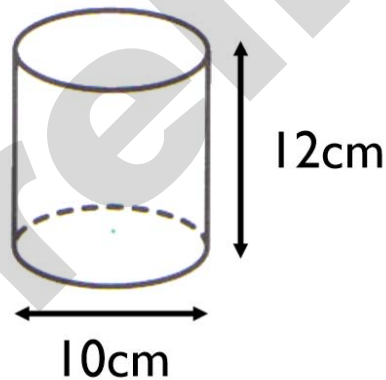
Is the item dangerous? Show working to justify your answer.

2

2. A beaker used in science is in the shape of a cylinder with diameter 10cm and height 12cm as shown.

Calculate the volume of the beaker.

Use $\pi = 3.14$.



3



10. The following table lists some old units of weight:

1 stone = 14 pounds 1 pound = 16 ounces

(a) Molly owns a farm. She buys a sheep weighing $12\frac{1}{2}$ stone. How many pounds does the sheep weigh?

(b) Trevor works on the same farm. He needs to drive a truck full of young pigs over an old bridge. The bridge has a warning sign at its entrance.

DANGER MAXIMUM WEIGHT 600 stones

Each of the pigs in Trevor's truck could weigh anything in the range $60\text{kg} \pm 25\text{kg}$.

Trevor's truck weighs 2500kg. Trevor weighs 90kg. There is no other weight on the truck other than Trevor and the pigs.

Given that 1 stone = 6.35 kilograms, can Trevor safely drive the truck over the bridge with 18 pigs on board?

[END OF QUESTION PAPER]