

ANSWERS (USING NUMBERS)

1. (a)

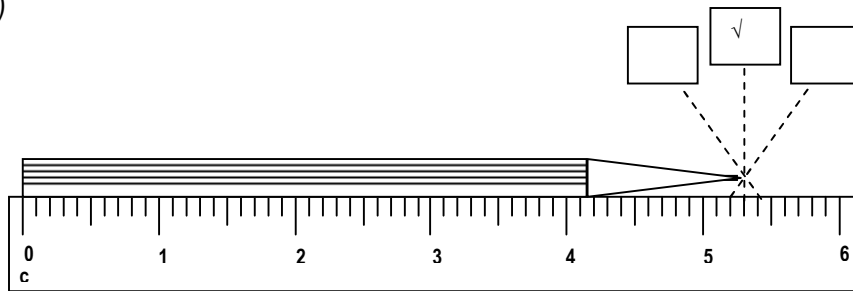


FIGURE 1.1

(b) 5.3 cm

(c) Thread and ruler

(d) 12.6 cm

(e) To get a more accurate reading

2. (a) (i) Internal calipers

(ii) External calipers

(b) 1.8 cm

(c) 2.0 cm

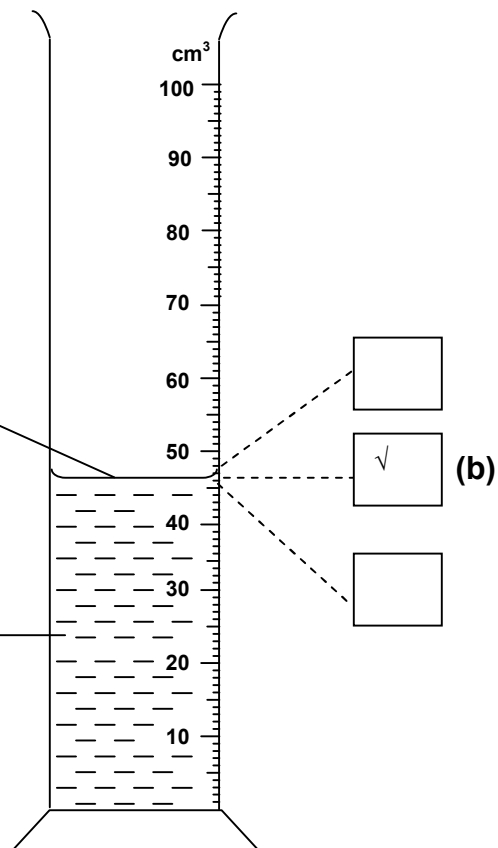
$$(d) \frac{2.0 \text{ cm} - 1.8 \text{ cm}}{2}$$

$$= 0.1 \text{ cm}$$

3.

(a) meniscus

Water



(c) 46 cm³

(d) (i) water displacement method

$$(ii) \text{ Volume of stone} = 63 - 46 \text{ cm}^3$$

$$= 17 \text{ cm}^3$$

FIGURE 3.1

4. (a) Density of X = $\frac{35 \text{ g}}{10 \text{ cm}^3}$

$$= 3.5 \text{ g/cm}^3$$

(b) (i)

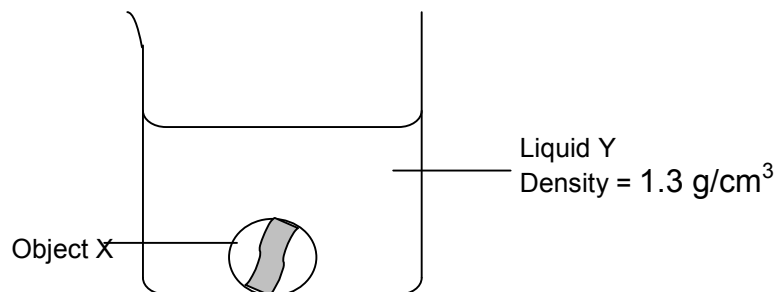
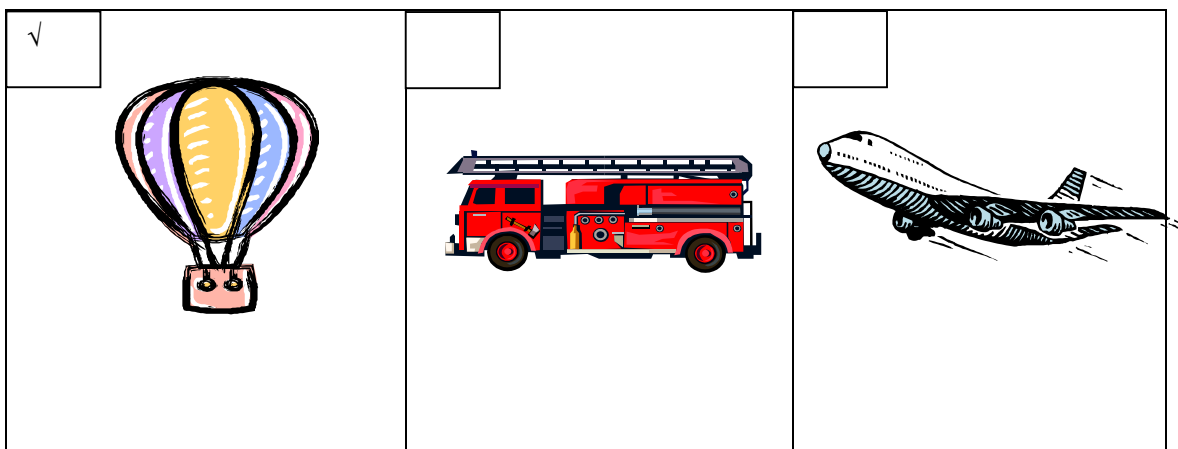


FIGURE 4.2

(ii) Object X is denser than liquid Y // Liquid Y is less dense than object X.

(c)



5. (a) (i) Frictional force

(ii) Gravitational force

(b) Work done = $(45 \times 10) \text{ N} \times 5 \text{ m}$

$$= 2\,250 \text{ J}$$

(c) Power = $\frac{\text{Work done}}{\text{Time}}$

$$= \frac{2\,250 \text{ J}}{20 \text{ s}}$$

$$= 112.5 \text{ W}$$

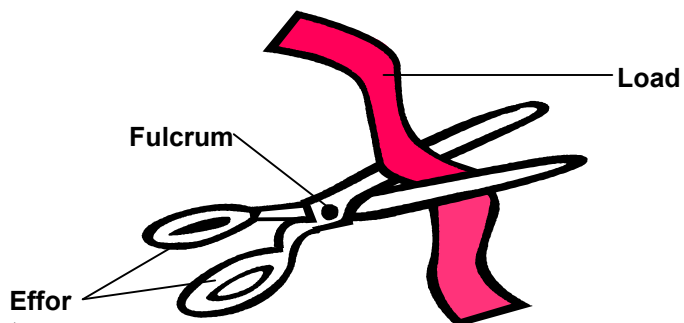


FIGURE 6.1

(6) (a)

(b) (i) First class lever

(ii) The fulcrum is between effort and load // The fulcrum is in the centre

(c) (i) Daniel

(ii) X is shorter than Y // Y is longer than X//Daniel sits closer to the fulcrum

(d) $400 \text{ N} \times 1.5 \text{ m} = X \times 2.0 \text{ m}$

$$X = \frac{400 \text{ N} \times 1.5 \text{ m}}{2.0 \text{ m}}$$

$$X = 300 \text{ N}$$

6. (a) P: Live wire
Q: Neutral wire
R: Earth wire

(b) Breaks the circuit when there is excess current flowing through it

(c) Prevents the electrical appliance from being damaged by excess current // Sends the leaked current (from the body of the electrical appliance) to the Earth

(d) Current flow = $\frac{\text{Power}}{\text{Voltage}}$

$$= \frac{1\,500 \text{ W}}{240 \text{ V}}$$

$$= 6.25 \text{ A}$$

(e)

