

## Section 7.2: Scale Diagrams & Reductions

Note: If the scale factor is less than one, the scale diagram will be a reduction.

Example: Determine the scale factor using the original button and its scale diagram.



Original diagram



Scale diagram

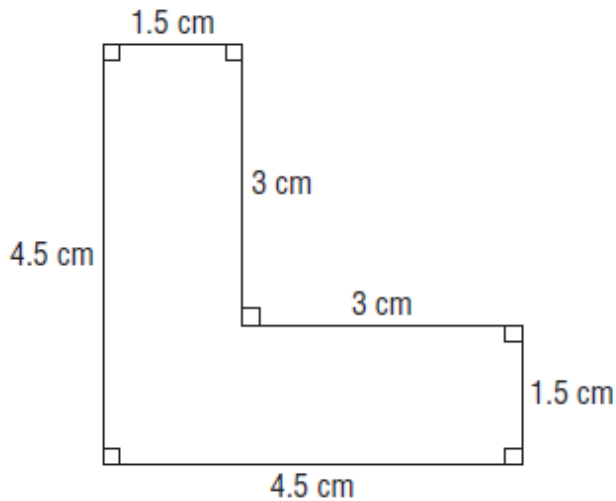
Procedure:

- Measure the diameter of both circles and then calculate S.F.

Answer: Diameter of button = 5.5 cm  
Diameter of scale diagram = 3.6 cm

$$\text{S.F.} = \frac{3.6}{5.5} = 0.\overline{654}$$

Ex 2 If the scale factor for the following diagram is  $\frac{2}{3}$ , create a scale diagram showing the reduction.



Procedure:

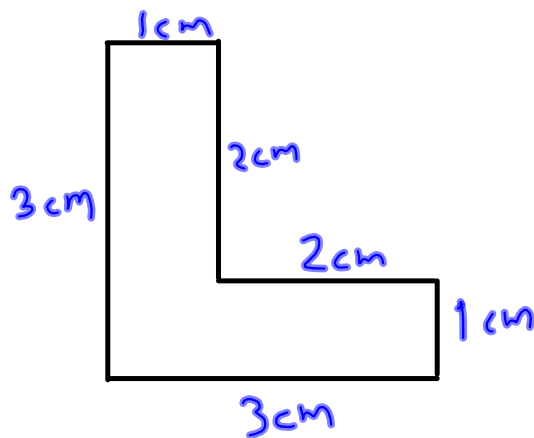
- change fraction to decimal
- multiply it by each side in the diagram
- draw a scale diagram

Answer:

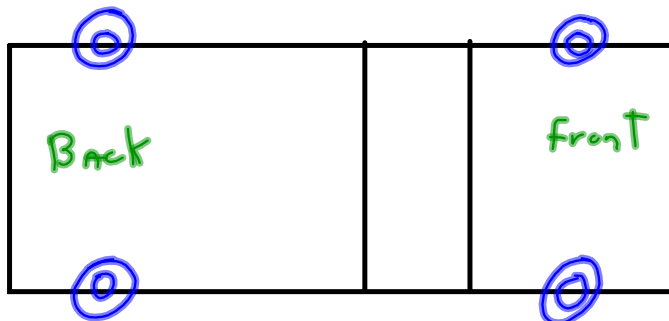
$$1.5 \text{ cm} \times 0.\bar{6} = 1 \text{ cm}$$

$$3 \text{ cm} \times 0.\bar{6} = 2 \text{ cm}$$

$$4.5 \text{ cm} \times 0.\bar{6} = 3 \text{ cm}$$



Ex#3 Here is a scale diagram of a truck



\* Scale factor  
 $1:50$   
 $(1:50 = \frac{1}{50} = 0.02)$

\* The front & back wheels are 3.85m apart

(A) Determine the length between the wheels on the scale diagram.

(B) What is the width of the truck?

(Ans) (A) Scale length between tires is  
 $3.85\text{m} \times 0.02$

$$= 0.077\text{m} \quad \underline{\text{OR}} \quad \underline{7.7\text{cm}}$$

.....  
 (B) \* Use a ruler to measure the width of the scale diagram truck:

$$\text{Scale width} = 5\text{cm}$$

$$\text{original width} = 5\text{cm} \times 50$$

$$= 250\text{cm} \quad \underline{\text{OR}} \quad \underline{2.5\text{m}}$$

Homework:

Section 7.1: pg 323-324 # 4, 5, 6, 11, 15

Section 7.2: pg 329-331 # 5, 6, 8, 11, 12, 20

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