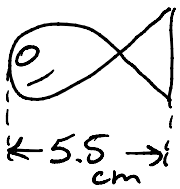
Scale – a comparison between actual sizes of an object and the sizes of its diagram.

– can be a – RATIO 1:3
– FRACTION $\frac{1}{3}$
– PERCENT 33%
– WORDS "the actual size is 28cm and the diagram is 2cm"
– DIAGRAM

– a **scale** of 1:3 **means**

1cm diagram is 3cm on actual
same units

A **scale diagram** is a drawing that is similar to the actual object but may be smaller or larger than the actual object and must be in proportion. Helps visualize actual object

ex. 1 

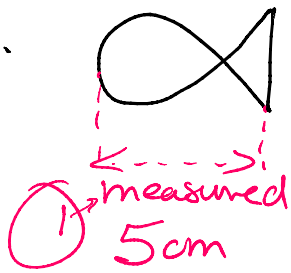
scale is 1:14
What is the actual length?

$\text{scale} = \frac{\text{diagram}}{\text{actual}} \Rightarrow \frac{1}{14} = \frac{5.5}{?}$

$\frac{14 \times 5.5}{1} = 77\text{cm}$

2.

Actual length is 45cm.

2. 

Actual length is 45cm.
Calculate the scale factor of the diagram.

① measured 5cm

② $\frac{\text{diag.}}{\text{act.}} \Rightarrow \frac{1}{?} = \frac{5}{45}$

$\frac{45 \times 1}{5} = 9$

scale factor is 1:9 or $\frac{1}{9}$ or 0.1

3. 10cm on a map is 150km actual distance.
– when comparing using a ratio, we must THE SAME UNITS

10cm represents 150km
↑ change to cm
km | m | cm, mm
5 dec places to right

10cm represents 15,000,000 cm

Scale 10 : 15,000,000
1 : 1,500,000

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