

### Diagonal scales :-

A Diagonal scale represents either three units or only one unit and its fractions up to the second place of decimal point.

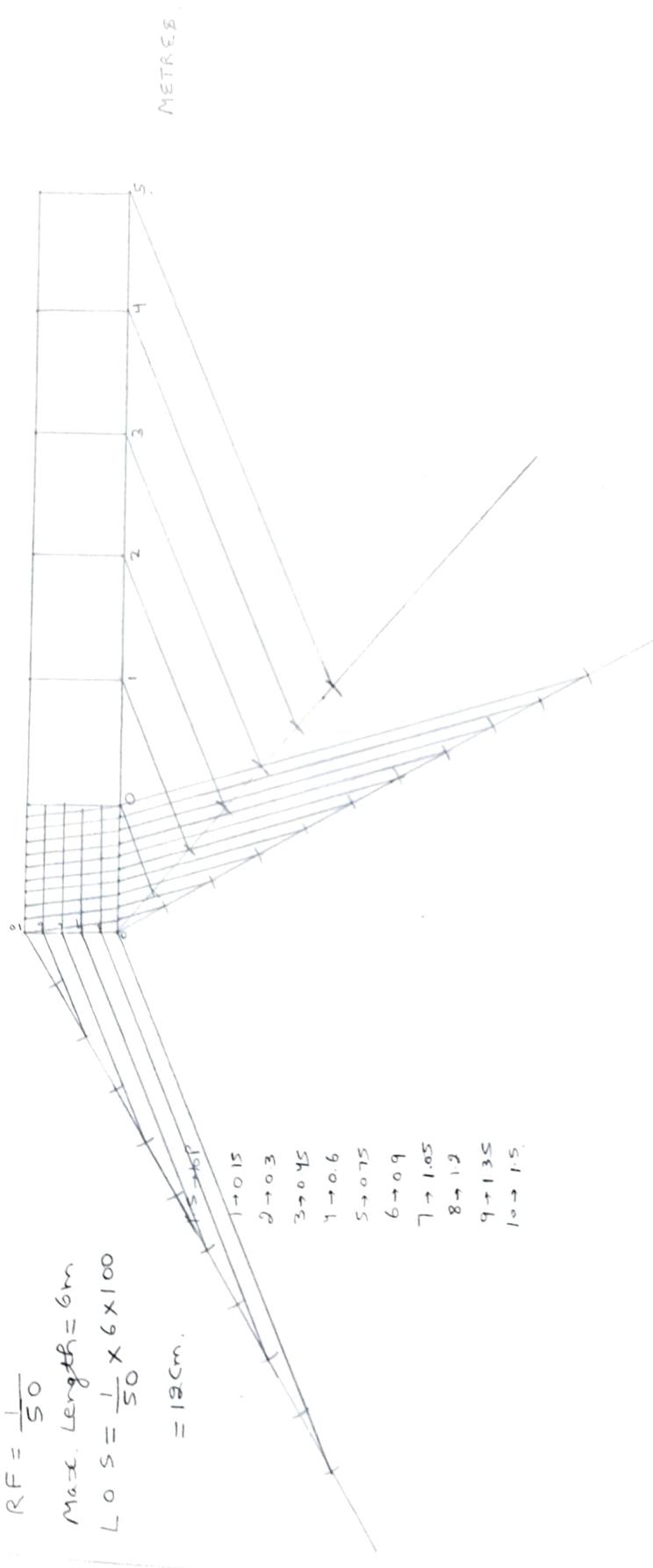
Q-13. Construct a diagonal scale of 1:50, to show metres, decimetres & centimetres and long enough to measure up to 6metres. Also indicate on this scale a distance of 4m, 5dm and 4cm.

$$RF = \frac{1}{50}$$

Max. Length = 6m

$$\text{L.O.S} = \frac{1}{50} \times 6 \times 100$$

$$= 12\text{cm.}$$



Q-1. Construct a scale of  $1\text{ cm} = 1\text{ m}$  to read metres and decimetres and long enough to measure up to 14 metres.  
Show on this scale a distance equal to 12.4 metres.

Step-1

$$1\text{ cm} = 1\text{ m}$$

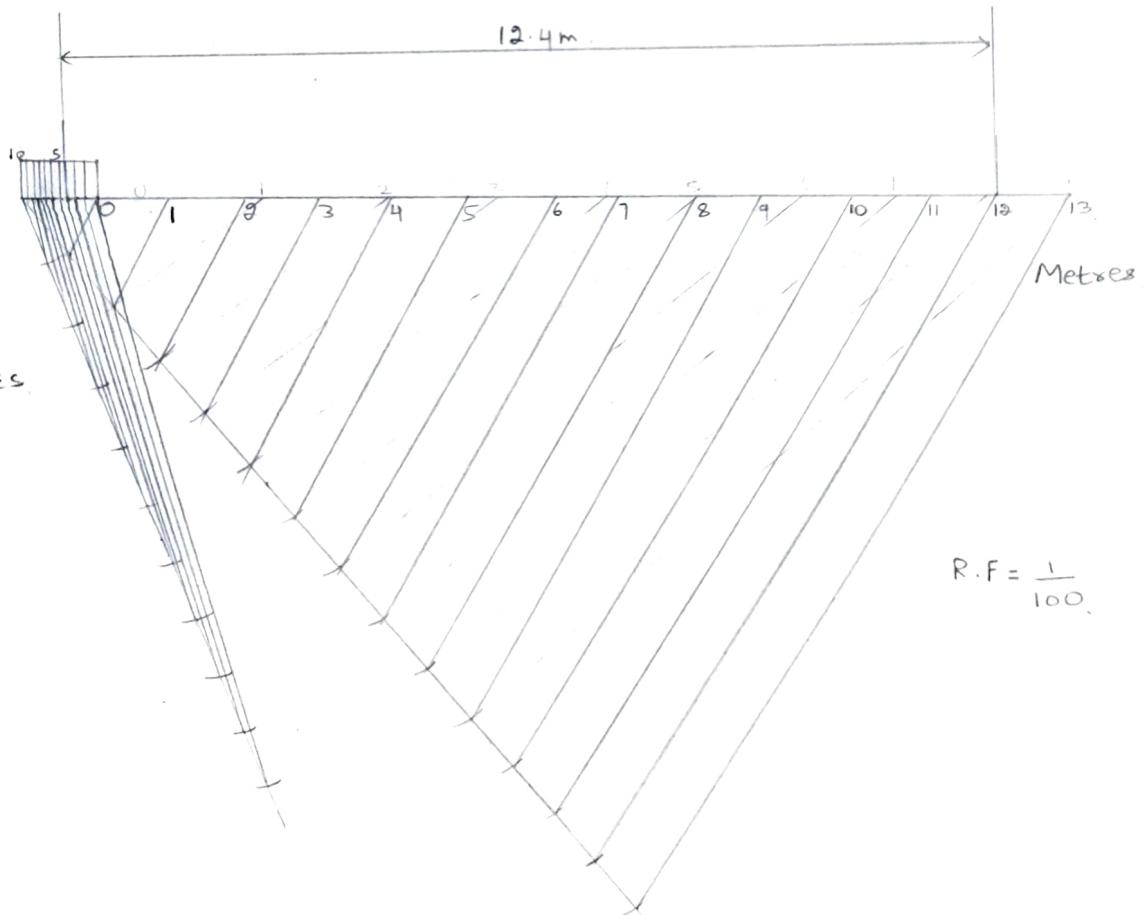
$$1\text{ cm} = 100\text{ cm.}$$

$$RF = \frac{1}{100}.$$

$$\text{Length of scale, L.O.S} = RF \times \text{Max. Length Measured}$$

$$= \frac{1}{100} \times 14 \times 100 = 14\text{ cm.}$$

length = 14



Diagonal scales :-

A diagonal scale represents either three units or only one unit and its fractions up to the second place of decimal point.

Second place of decimal point.

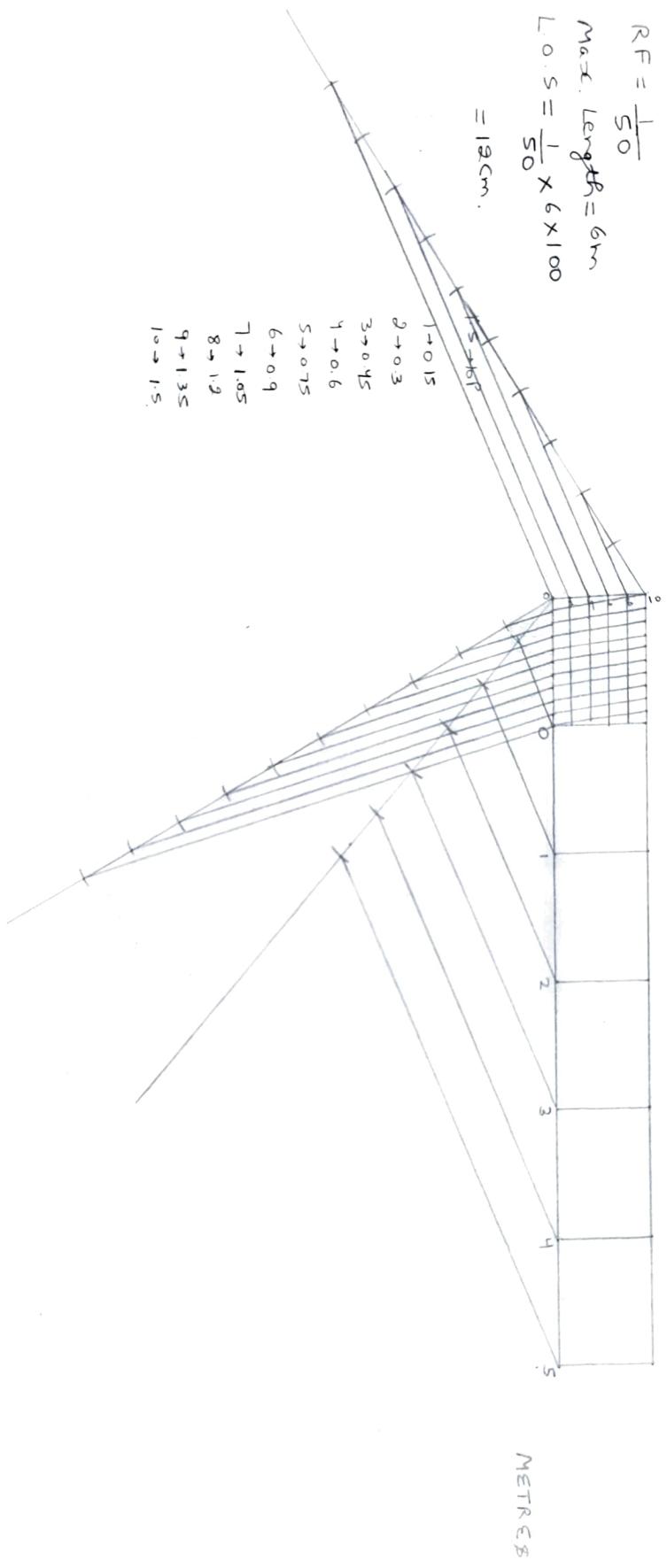
constant a diagonal scale of 1:50, to show metres, decimetres & centimetres and long enough to measure up to 6 metres. Also indicate on this scale a distance of 4m, 5dm and 4cm.

$$R.F = \frac{1}{50}$$

Max. length = 6m

$$L.O.S = \frac{1}{50} \times 6 \times 100$$

$$= 12\text{ cm.}$$



Q-14. The distance b/w Ludhiana and Chandigarh is 100 km and it is represented on a certain map by a line 2.5 cm long. Find the R.F. of the scale of the map. Draw a diagonal scale showing single kilometre & long enough to measure up to 600 km. Indicate a distance of 573 km on this scale.

$$100 \text{ km} = 2.5 \text{ cm}$$

$$\frac{100 \times 1000 \times 100}{\text{cm}} = 2.5 \text{ cm.}$$

$$R.F. = \frac{1}{4000000}$$

$$L.O.S = R.F. \times \frac{\text{Max. length}}{\text{Measured}}$$

$$= \frac{1}{4000000} \times \frac{300 \times 1000 \times 100}{2.5}$$

$$= 15 \text{ cm.}$$

$$\begin{aligned} 1 \text{ part} &\rightarrow 10 \text{ part} \\ 2 \text{ part} &\rightarrow 0.25 \text{ cm} \\ 3 \text{ part} &\rightarrow 0.50 \text{ cm} \\ 4 \text{ part} &\rightarrow 0.75 \text{ cm} \\ & \vdots \\ 573 \text{ km.} & \end{aligned}$$



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construct a forward Vernier scale of RF = 1/2500 and long enough to measure 300 metres and to show metres. Show on this scale a distance of 157m.



157m.

$$RF = \frac{1}{2500}$$

max. length = 300m

$$0.5 = RF \times \text{max. length}$$

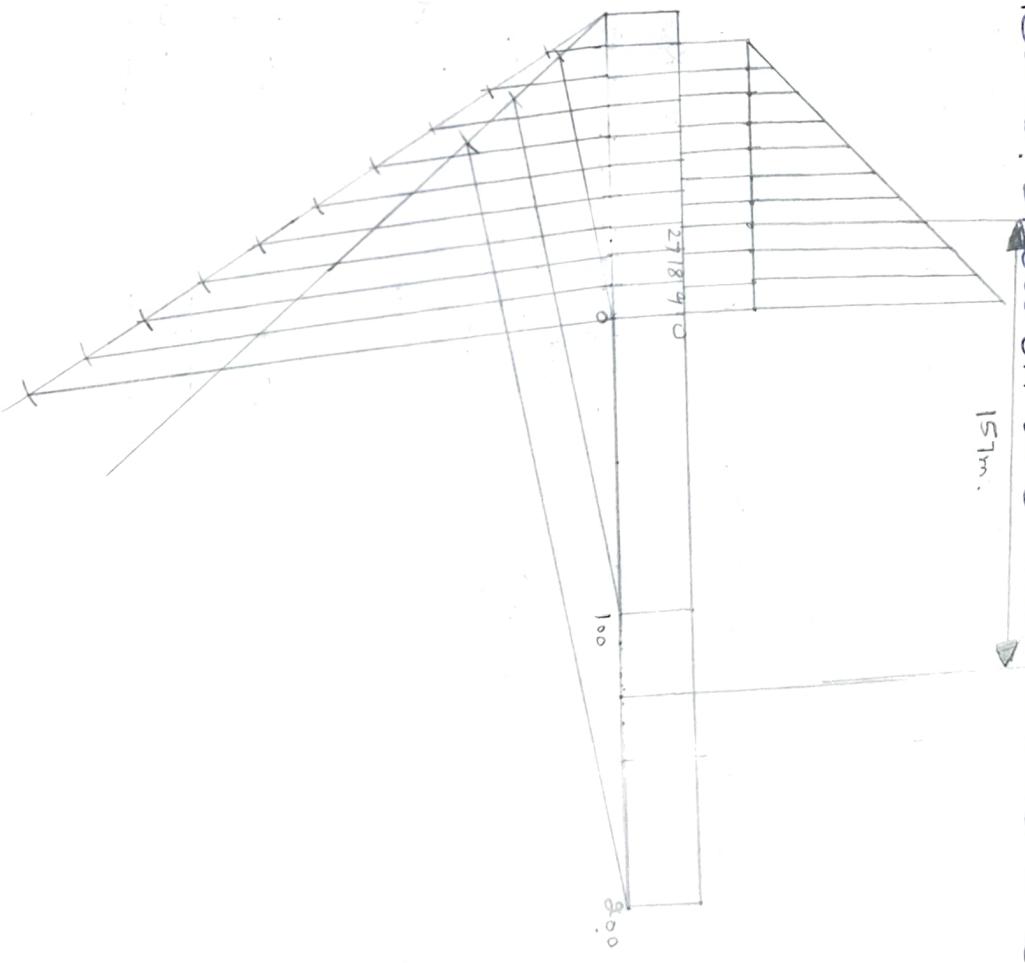
$$= \frac{1}{2500} \times 300 \times 100$$

= 12cm.

Q.1 Draw 12cm.

p-2 Divide it into 3 parts.

$$\begin{aligned} 1\text{ part} &\rightarrow 40\text{ m} \\ 1\text{ part} &\rightarrow 4\text{ d.} \end{aligned}$$



metres  
100

$$100 \text{ m} = 10 \text{ part}$$

$$1 \text{ part} = 10 \text{ m}$$

$$1 \text{ part} = 4 \text{ d.}$$

$$1 \text{ part} = 40 \text{ m}$$

Ques 38 construct a backward reading Vernier scale when 1.5 cm on scale represents 1.65 m actual length, to read up to 16 metres. Also show on the scale the distances of 12, 14, 8.37 metres.

8.37 metres.

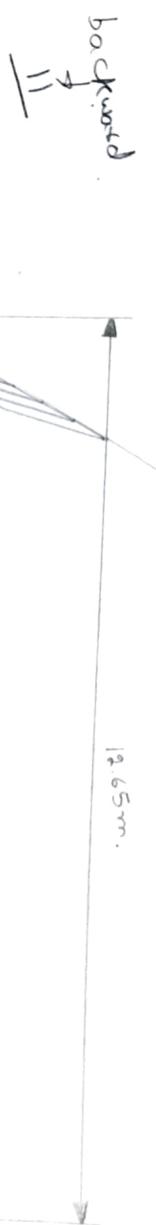
$$1.5 \text{ cm} = 1.2 \text{ m}$$

$$1.5 \text{ cm} = 1.2 \times 100 \text{ cm}$$

$$\begin{aligned} RF &= \frac{1.5 \times 10}{10 \times 12 \times 100} \\ &= \frac{1}{80} \end{aligned}$$

$$L.O.S = \frac{1}{80} \times 16 \times 100$$

$$= 20 \text{ cm.}$$



19.65

.55

12.10

8.37

.77

7.60