

2. Map Scale

Exercise

1. Choose the right answer from the four alternatives given below:

(i) Which one of the following methods of scale is a universal method?

- (a) Simple Statement**
- (b) Representative Fraction**
- (c) Graphical Scale**
- (d) None of the above**

Answer: (b) Representative Fraction

(ii) Map distance in a scale is also known as:

- (a) Numerator**
- (b) Denominator**
- (c) Statement of Scale**
- (d) Representative Fraction**

Answer: (a) Numerator

(iii) 'Numerator' in scale represents:

- (a) Ground distance**
- (b) Map distance**
- (c) Both the distances**
- (d) None of the above**

Answer: (b) Map distance

2. Answer the following questions in about 30 words:

(i) What are the two different systems of measurement?

Answer: Two different systems of measurement are the Metric System of Measurement and the English System of Measurement. The Metric System of Measurement (kilometer, meter, centimeter, and the millimeter) is presently used in India and the English System of Measurement (miles, furlongs, yards, and feet) is common in both the United States and the United Kingdom.

(ii) Give one example each of statement of scale in Metric and English system.

Answer: The scale of a map may be indicated in the form of a written statement. For example, in the Metric System of Measurement statement appears stating 1 cm represents 20 km, it means that on that map a distance of 1 cm is representing 20 km of the corresponding ground distance. It may also be expressed in the English System of Measurement, i.e., 1 inch represents 20 miles.

(iii) Why is the Representative Fraction method called a Universal method?

Answer: Representative Fraction is the ratio between distances on the map and the corresponding distance on the ground. Both the numerator and the denominator are in the same units, so those familiar either with the Metric Scale or English Scale can interpret the map. This quality of expressing scale in units in Representative Fraction makes it a universally acceptable and usable method.

(iv) What are the major advantages of the graphical method?

Answer: Graphical method shows map distances and the corresponding ground distances using a line bar with primary and secondary divisions marked on it. The graphical scale stands valid even when the map is reduced or enlarged. This is the unique advantage of the graphical method of the map scale.

3. Convert the given Statement of Scale into

Representative Fraction (R. F.). (i) 5 cm represents 10 km Answer:

- 5cm equals 10 km or
- 1cm equal to 2 km or
- 1 cm equal to 2X1000 m or
- 1 cm equal to 2X1000X100 cm or
- NOTE : We can now replace the character “cms” into “units” and read it as :
- 1 unit equal to 200000 units or
- R.F. 1:200000

(ii) 2 inches represents 4 miles

Answer:

- 2 inches represents 4 miles or
- 1 inch represents 2 miles or
- 1 inch represents $2 \times 63,360$ inches or
- NOTE : We can now replace the character “inches” into “units” and read it as :
- 1 unit represents 126720 units or
- R. F. 1 : 126720

(iii) 1 inch represents 1 yard

Answer:

- 1 inch represents 1 yard or
- 1 inch represents 3 feet or
- 1 inch represents 3×12 Inches or
- NOTE : We can now replace the character “inches” into “units” and read it as :
- 1 unit represents 36 units or
- R.F. 1:36

(iv) 1 cm represents 100 meters

Answer:

- 1 cm represents 100 meters OR
- 1 cm represents 100×100 cm
- NOTE : We can now replace the character “cms” into “units” and read it as :
- 1 unit represents 10000 units
- R.F. 1:10000

4. Convert the given Representative Fraction (F.) into Statement of Scale in the System of Measurement shown in parentheses:

(i) 1 : 100,000 (into km)

Answer: The given R. F. of 1 : 100,000 may be converted into Statement of Scale using the following steps :

- 1 : 100,000 means that 1 unit on the map represents 100,000 units on the ground.
- or 1 cm represents $100,000 / 100,000$ (1 km = 100,000 cm)
- 1 cm represents 1 km

(ii) 1 : 31680 (into furlongs)

Answer: The given R. F. of 1 : 31680 may be converted into Statement of Scale using the following steps :

- 1 : 31680 means that 1 unit on the map represents 31680 units on the ground.
- or 1 inch represents $31680 / 7920$ furlongs (1 Furlong = 7920 inches)
- 1 inch represents 4 furlongs

(iii) 1: 126,720 (into miles)

Answer: The given R. F. of 1 : 126,720 may be converted into Statement of Scale using the following steps :

- 1 : 126,720 means that 1 unit on the map represents 126,720 units on the ground.
- or 1 inch represents $126,720 / 63360$ inches (1 mile = 63360 Inches)
- 1 Inch represents 2 miles

(iv) 1 : 50,000 (into meters)

Answer: The given R. F. of 1 : 50,000 may be converted into Statement of Scale using the following steps :

- 1 : 50,000 means that 1 unit on the map represents 50,000 units on the ground.
- or 1 cm represents $50,000 / 100$ metres (1 metre = 100 cms)
- 1 cm represents 500 metres

5. Construct a graphical scale when the given F. is 1 : 50,000 and read the distances in kilometer and metre.

Answer:

