

UNIT 15 Variation

Mental Tests

Mental Test 15.1

- In a school, the ratio of teachers to pupils is 1 : 15. If there are 4 teachers, how many pupils are there in the school? (60)
- In another school, there are 8 teachers and 160 pupils. What is the teacher : pupil ratio in its lowest terms? (1 : 20)
- The ratio of flour to sugar in a recipe is 3 : 2. How much
 - flour should be mixed with 200 grams of sugar (300 gm)
 - sugar should be mixed with 150 grams of flour? (100 gm)
- A plank of length 12 metres is divided into 2 parts with length ratio of 1 : 5. What is the length of each part? (2 m, 10 m)
- A map has scale 1 : 10 000. What is the actual length in km of a 5 cm line? ($\frac{1}{2}$ km)
- The distance between Exeter and Bristol is 100 km. What is this length, in centimetres, on a map with scale
 - 1 : 1 000 000
 - 1 : 2 000 000
 - 1 : 500 000 ?
 (10 cm, 5 cm, 20 cm)

Mental Test 15.2

- In a company, the ratio of directors to factory workers is 1 : 12. If there are 96 factory workers, how many directors are there? (8)
- In another company, there are 5 directors and 80 factory workers. What is the director : factory worker ratio in its lowest terms? (1 : 16)
- The ratio of oil to petrol needed for a motorbike is 2 : 5. How much
 - oil should be used with 25 litres of petrol, (10 litres)
 - petrol should be used with 6 litres of oil? (15 litres)
- A rope of length 15 metres is divided into 2 parts with length ratio 1 : 4. What is the length of each part? (3 m, 12 m)
- A map has scale 1 : 20 000. What is the actual length in km of a 5 cm line on this map? (1 km)
- The distance between London and Birmingham is 200 km. What length, in centimetres, represents this distance on a map with scale
 - 1 : 2 000 000
 - 1 : 1 000 000
 - 1 : 4 000 000 ?
 (10 cm, 20 cm, 5 cm)