CLASS VIII – MATHEMATICS

Chapter Test: Proportional Reasoning-2

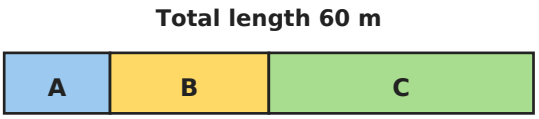
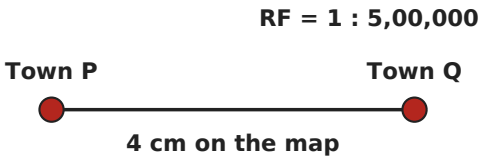
(Ganita Prakash, Grade 8, Part II – Chapter 3)

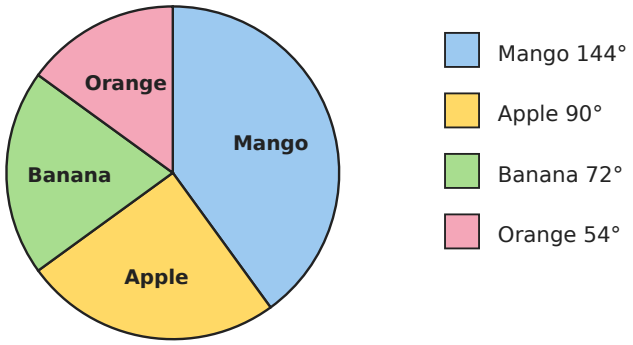
Time: 1½ Hours **M. M.: 40**

General Instructions:

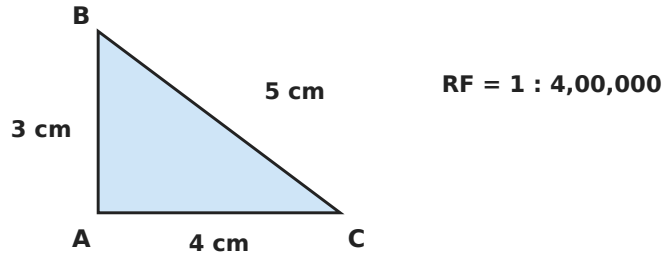
1. This paper contains 20 questions. All questions are compulsory.
2. This paper is divided into 4 sections: **A, B, C** and **D**.
3. In **Section A**, Questions no. 1 to 10 are Multiple Choice Questions carrying 1 mark each.
4. In **Section B**, Questions no. 11 to 13 are Very Short Answer type questions carrying 2 marks each.
5. In **Section C**, Questions no. 14 to 17 are Short Answer type questions carrying 3 marks each.
6. In **Section D**, Questions no. 18 to 20 are Long Answer / Case-based questions carrying 4 marks each.
7. There is no overall choice. However, an internal choice has been provided in 1 question of Section B, 3 questions of Section C and 2 questions of Section D.
8. Figures are only for reference and are not drawn to scale. Questions 9, 10, 11, 14 and 18 are figure-based.
9. Show all the steps of your working.
10. Use of calculator is **not** allowed.

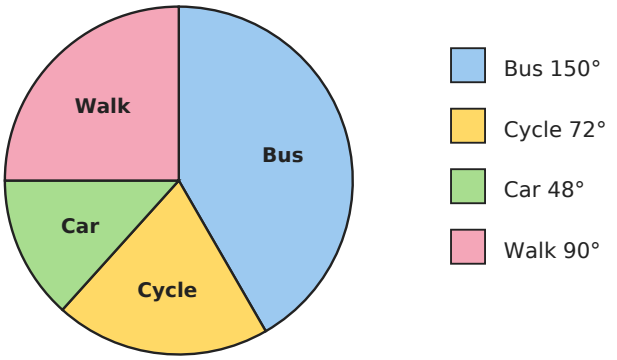
Q. No.	Section – A	Marks
1	In a pie chart, the sector angle that represents 30 students out of 120 students is (A) 30° (B) 60° (C) 90° (D) 120°	**[1]**
2	Red, blue and white paints are mixed in the ratio 2 : 3 : 5. If 15 litres of blue paint is used, the amount of white paint needed is (A) 25 litres (B) 20 litres (C) 30 litres (D) 10 litres	**[1]**
3	When 150 is divided in the ratio 3 : 5 : 7, the largest part is (A) 30 (B) 50 (C) 60 (D) 70	**[1]**
4	x and y are in inverse proportion. If x = 6 when y = 20, then the value of y when x = 15 is (A) 50 (B) 8 (C) 12 (D) 18	**[1]**
5	The angles of a triangle are in the ratio 2 : 3 : 4. The largest angle is (A) 60° (B) 70° (C) 80° (D) 90°	**[1]**
6	12 workers can complete a job in 10 days. The number of days taken by 15 workers is (A) 8 (B) 12.5 (C) 6 (D) 9	**[1]**
7	Which of the following pairs of quantities is in inverse proportion? (A) Number of pens and their total cost (B) Length of cloth and its price at a fixed rate (C) Distance covered at a fixed speed and time taken (D) Speed of a bus and time taken to cover a fixed route	**[1]**

Q. No.	Section – A	Marks
8	The ratio 4 : 6 : 10 in its simplest form is (A) 1 : 2 : 3 (B) 2 : 3 : 5 (C) 4 : 3 : 5 (D) 2 : 3 : 10	**[1]**
9	In Fig. 1, the 60 m rope is cut into three pieces in the ratio 2 : 3 : 5. The length of the longest piece is  Fig. 1: A rope of 60 m cut into three pieces A, B and C in the ratio 2 : 3 : 5 (A) 12 m (B) 18 m (C) 24 m (D) 30 m	**[1]**
10	In Fig. 2, the distance between two towns P and Q on a map is 4 cm. The actual distance between the towns is  Fig. 2: Two towns on a map (A) 20 km (B) 2 km (C) 200 km (D) 8 km	**[1]**

Q. No.	Section – B	Marks
11	Fig. 3 is a pie chart showing the favourite fruit of 800 people.  Fig. 3: Favourite fruit of 800 people (i) What fraction of the people like mangoes? How many people is that? [1] (ii) How many people like bananas? [1]	**[2]**
12	(A) 5 taps fill a tank in 12 hours. How long will 8 taps of the same kind take to fill it? **OR** (B) Check whether x and y are in inverse proportion: x = 4, 8, 16 and y = 40, 20, 10.	**[2]**

Q. No.	Section – B	Marks
13	A spice mix is made with coriander, chillies and *toor dal* in the ratio 6 : 3 : 2 (in spoons). If 9 spoons of chillies are used, find the number of spoons of coriander and *toor dal* needed to get the same taste.	**[2]**

Q. No.	Section – C	Marks
14	Fig. 4 shows the distances (in cm) between three villages A, B and C on a map whose RF is 1 : 4,00,000.  Fig. 4: Map showing three villages A, B and C (distances on the map) (i) How many kilometres does 1 cm on this map represent? [1] (ii) Find the actual distances AB, BC and AC. [1] (iii) A cyclist goes from A to B to C and back to A. Find the total distance. [1]	**[3]**
15	(A) Divide ₹7,200 among Arun, Bina and Chitra in the ratio 2 : 3 : 4. **OR** (B) The angles of a triangle are in the ratio 3 : 4 : 5. Find each angle.	**[3]**
16	(A) In a survey of 120 students, the favourite games are: Cricket 40, Football 30, Hockey 20, Tennis 10 and Chess 20. Find the angle of the sector for each game in a pie chart. Check that the angles add up to 360°. **OR** (B) In a pie chart of 720 students, the sector for Maths measures 90° and the sector for Science measures 144°. How many students chose each subject?	**[3]**
17	(A) 15 men can build a wall in 24 days. How many men are needed to build it in 18 days? **OR** (B) Pipe A can fill a tank in 6 hours and pipe B can fill it in 3 hours. How long will they take to fill the tank together?	**[3]**

Q. No.	Section – D	Marks
18	(A) Fig. 5 shows how children in a school travel to school.  Fig. 5: Modes of transport used by children to go to school (i) Which is the most common mode of transport? [1] (ii) What fraction of the children travel by car? Write it in simplest form. [1] (iii) If 24 children travel by car, how many children took part in the survey? [1] (iv) How many children travel by cycle? [1] **OR** (B) Concrete is made by mixing cement, sand and gravel in the ratio 1 : 2 : 4. (i) How much of each is needed to make 2,800 kg of concrete? [2] (ii) If only 600 kg of sand is available, how much concrete can be made with the right proportions? [2]	**[4]**
19	(A) A hostel has food for 60 students for 25 days. (i) What quantity remains constant for any number of students? [1] (ii) If 15 more students join, write an equation to find the number of days d the food will last. [1] (iii) Find the value of d. [1] (iv) If instead 20 students leave, for how many days will the food last? [1] **OR** (B) Tap A can fill a tank in 4 hours and tap B can fill it in 12 hours. (i) What part of the tank does A fill in 1 hour? [1] (ii) What part of the tank does B fill in 1 hour? [1] (iii) What part do they fill together in 1 hour? [1] (iv) How long will they take to fill the tank together? [1]	**[4]**
20	**Case Study:** A school plans a trip to a fort 240 km away. The travel time depends on the average speed of the bus. (i) How long will the bus take at 48 km/h? [1] (ii) At what average speed must the bus travel to reach the fort in 3 hours? [1] (iii) The bus takes 6 hours at a speed of x km/h. Find x. [1] (iv) The distance between the school and the fort is shown on a map with RF 1 : 30,00,000. Find the distance between them on the map. [1]	**[4]**

— End of Question Paper —