



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. Simplify the ratio 18:24.
2. Express 45 minutes:2 hours in simplest form.
3. Are 3, 5, 12, 20 in proportion?
4. Find x if $4:7=x:35$.
5. Five pens cost ₹60. Find the cost of eight pens.
6. Three notebooks cost ₹135. Find the cost of seven.
7. Divide ₹720 in the ratio 5:7.
8. Divide 90 sweets in the ratio 2:3:4.

B. Short answers / practice - 2 marks each

9. A car travels 150 km in 3 hours at steady speed. Find distance in 5 hours.
10. Find time for 400 km at the same speed.
11. A map uses 1 cm for 5 km. What does 7.2 cm represent?
12. How long is a 45 km route on the map?
13. Find 25% of 360.
14. What percent of 80 is 12?
15. A recipe for 4 uses 300 g flour. Find flour for 10.
16. If only 450 g flour is available, how many servings are possible?
17. Are age and height always directly proportional?
18. Give two everyday examples of direct proportion.
19. A shirt priced ₹800 has 15% discount. Find sale price.
20. A ₹500 item rises by 12%. Find new price.

C. Application / reasoning - 3 marks each

21. A mixture has milk:water=4:1 and volume 15 L. Find milk.

22. How much water is in it?
23. A student scores 72 out of 90. Find percentage.
24. How many marks out of 150 give the same percentage?
25. Complete a direct-proportion table: $x=2, 4, 7$; $y=10, 20, \square$.
26. State its constant of proportionality y/x .
27. Divide ₹1260 in the ratio 4:5.
28. An item costs ₹960 after a 20% discount. Find marked price.
29. Seven identical books cost ₹588. Find the cost of twelve.
30. A map scale is 1:50000. Find actual distance for 3.4 cm.
31. A juice mix uses concentrate:water=2:7. Find concentrate needed for 4.5 L.
32. A scale drawing is 1:200. Find actual length represented by 6 cm.
33. A room is 8 m wide; find its width on the drawing.
34. Explain why a fixed taxi charge plus a distance charge is not direct proportion.
35. A taxi charges ₹40 plus ₹15/km. Compare fares for 2 km and 4 km.

ANSWER KEY - Numerical / closed questions

- 1) 3:4. 2) 3:8. 3) Yes. 4) 20. 5) ₹96. 6) ₹315.
7) ₹300, ₹420. 8) 20, 30, 40. 9) 250 km. 10) 8 hours.
11) 36 km. 12) 9 cm. 13) 90. 14) 15%.
15) 750 g. 16) 6. 17) No. 18) ₹680. 19) ₹560.
21) 12 L. 22) 3 L. 23) 80%. 24) 120. 25) 35.
26) 5. 27) ₹560, ₹700. 28) ₹1200. 29) ₹1008.
30) 1.7 km. 31) 1 L. 32) 12 m. 33) 4 cm. 35) ₹70, ₹100; not double.