P5 Mathematics Practice Paper: Fractions, Decimals, Percentages, Area, Volume, Speed and Averages

P5 | Mathematics | Time: 60 minutes | Total: 100 marks | 24 questions

---

Part 1: Fractions (16 marks)

Work out each answer in its simplest form. 4 marks each.

1. Work out 3/4 + 5/8. [4]

Answer: 11/8 (that is, 1 3/8) - use denominator 8: 6/8 + 5/8 = 11/8.

2. Work out 2 1/3 x 3/4. [4]

Answer: 7/4 (that is, 1 3/4) - change 2 1/3 to 7/3, multiply by 3/4; the 3 cancels, giving 7/4.

3. Work out 5/6 divided by 2/9. [4]

Answer: 15/4 (that is, 3 3/4) - dividing by 2/9 is multiplying by 9/2: 45/12 = 15/4.

4. A rope is 12 m long. 3/8 of it is used. How many metres are left? [4]

Answer: 7.5 m - the fraction left is 1 - 3/8 = 5/8, and 12 x 5/8 = 7.5 m (4.5 m was used).

Part 2: Decimals and Percentages (16 marks)

Work out each answer. 4 marks each.

5. Work out 0.6 x 2.5. [4]

Answer: 1.5 - 6 x 25 = 150, and the two factors have 2 decimal places in total, so move the point 2 places.

6. What is 45% of 240? [4]

Answer: 108 - 45% means 45/100, and 240 x 45/100 = 108.

7. A jacket costs $320 and is sold at 15% off. What is the selling price? [4]

Answer: $272 - the discount is 320 x 15% = $48, so the price is 320 - 48 = $272.

8. Change 7/20 into a percentage. [4]

Answer: 35% - 7 divided by 20 is 0.35, which is 35%.

Part 3: Area and Volume (16 marks)

Find the area or volume. 4 marks each.

9. A rectangle is 12 cm long and 7 cm wide. Find its area. [4]

Answer: 84 cm2 - area = length x width = 12 x 7 = 84 cm2.

10. A triangle has base 16 cm and height 9 cm. Find its area. [4]

Answer: 72 cm2 - area = base x height / 2 = 16 x 9 / 2 = 72 cm2.

11. A cuboid is 8 cm by 5 cm by 4 cm. Find its volume. [4]

Answer: 160 cm3 - volume = 8 x 5 x 4 = 160 cm3.

12. A circle has radius 7 cm. Find its area (take pi = 22/7). [4]

Answer: 154 cm2 - area = pi x r x r = 22/7 x 7 x 7 = 154 cm2.

Part 4: Speed and Time (16 marks)

Work out each answer. 4 marks each.

13. A car travels 150 km in 2.5 hours. Find its average speed. [4]

Answer: 60 km/h - speed = distance / time = 150 / 2.5 = 60 km/h.

14. A train travels at 72 km/h for 45 minutes. Find the distance. [4]

Answer: 54 km - 45 minutes is 0.75 hour, and 72 x 0.75 = 54 km.

15. Ming walks 1.2 km in 15 minutes. Find the average speed in m/min. [4]

Answer: 80 m/min - 1.2 km is 1200 m, and 1200 / 15 = 80 m/min.

16. A van travels 260 km in 4 hours. Find its average speed. [4]

Answer: 65 km/h - 260 / 4 = 65 km/h.

Part 5: Data Handling and Averages (18 marks)

Work out each answer. Note the marks for each question.

17. Find the mean of 12, 15, 9, 18 and 16. [4]

Answer: 14 - the total is 12 + 15 + 9 + 18 + 16 = 70, and 70 / 5 = 14.

18. Find the median of 7, 3, 9, 5, 11 and 13. [4]

Answer: 8 - in order: 3, 5, 7, 9, 11, 13. There are 6 values, so take the mean of the middle two: (7 + 9) / 2 = 8.

19. Find the mode of 4, 6, 6, 7, 8, 6 and 9. [5]

Answer: 6 - the value 6 appears 3 times, more often than any other, so the mode is 6.

20. Five test scores are 78, 85, 90, 82 and x, and the mean is 84. Find x. [5]

Answer: 85 - the total must be 84 x 5 = 420; the four known scores add to 335, so x = 420 - 335 = 85.

Part 6: Word Problems (18 marks)

Show your working. Note the marks for each question.

21. Ann buys 3 pens at $12.5 each and 2 notebooks at $18 each. How much does she pay? [4]

Answer: $73.5 - pens cost 3 x 12.5 = $37.5 and notebooks cost 2 x 18 = $36, so the total is $73.5.

22. A class has 40 students and 45% of them are girls. How many boys are there? [4]

Answer: 22 - girls are 40 x 45% = 18, so boys are 40 - 18 = 22.

23. A tank is 60 cm by 40 cm by 30 cm and is 3/4 full of water. Find the volume of water in litres. [5]

Answer: 54 litres - the tank holds 60 x 40 x 30 = 72000 cm3; water is 3/4 of that, 54000 cm3, and 1000 cm3 = 1 litre, so 54 litres.

24. An item costs $480. It is reduced by 20%, then by a further $50. Find the final price. [5]

Answer: $334 - the 20% reduction is 480 x 20% = $96, leaving $384; then subtract $50 to get $334.
