S2 Mathematics Practice Paper: Algebra, Linear Equations, Percentages and Ratios, Geometry, Area and Volume, Statistics

S2 | Mathematics | Time: 60 minutes | Total: 100 marks | 24 questions

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Part 1: Algebra and Factorisation (16 marks)

Answer all questions. 4 marks each.

1. Expand (x + 3)(x - 5). [4]

2. Factorise x^2 - 9x + 20. [4]

3. Simplify 3(2a - 4) - 2(a - 5). [4]

4. Given a = 3 and b = -2, find the value of a^2 - 2ab. [4]

Part 2: Linear Equations and Applications (16 marks)

Solve each equation or problem. 4 marks each.

5. Solve 5x - 7 = 3x + 9. [4]

6. Solve 3(x - 2) = x + 8. [4]

7. Four times a number plus 5 equals 37. Find the number. [4]

8. The sum of two consecutive integers is 45. Find the two integers. [4]

Part 3: Percentages and Ratios (16 marks)

Work out each answer. 4 marks each.

9. Find 20% of 45. [4]

10. An item costs $250 and is sold at a profit of 20%. Find the selling price. [4]

11. Simplify the ratio 24 : 36. [4]

12. Increase 60 by 15%. What is the result? [4]

Part 4: Geometry and Angles (16 marks)

Work out each answer. 4 marks each.

13. Two angles of a triangle are 55 and 65 degrees. Find the third angle. [4]

14. Find the size of each interior angle of a regular octagon. [4]

15. A transversal cuts two parallel lines. One corresponding angle is 115 degrees. Find the other corresponding angle. [4]

16. The sum of the interior angles of a polygon is 1080 degrees. How many sides does it have? [4]

Part 5: Area and Volume (18 marks)

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

17. A parallelogram has base 14 cm and height 6 cm. Find its area. [4]

18. A trapezium has parallel sides 8 cm and 14 cm and height 5 cm. Find its area. [4]

19. A cylinder has radius 7 cm and height 10 cm. Find its volume (take pi = 22/7). [5]

20. The total surface area of a cube is 216 cm2. Find its side length. [5]

Part 6: Statistics and Averages (18 marks)

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

21. The sum of 6 numbers is 84. Find their mean. [4]

22. Find the median of 12, 8, 15, 9 and 20. [4]

23. A shop sells 12, 18, 15 and 20 items on four days. Find the mean daily sales. [5]

24. The mean of 5 numbers is 18. After one more number is added, the mean of the 6 numbers is 20. Find the number added. [5]
