Mathsbase Exam Mini Mock 55 Minutes

1) Find the prime factorization of 48. (2 marks)

Answer: _____

2) Express $5^4 \div 5^2$ in its simplest form. (2 marks)

Answer: _____

3) Expand and simplify the expression $(2x + 3)(x - 1)$. (2 marks)

Answer: _____

4) Factorize the expression $9x^2 - 16y^2$. (3 marks)

Answer: _____

5) Solve the equation 2x - 5 = 7. (3 marks)

Answer: _____

6) Find the next three terms in the arithmetic sequence: 5, 10, 15, 20, ... (3 marks)

Answer: _____

7) Solve the inequality: 2x - 3 < 5x + 4. (3 marks)

Answer: _____

8) Solve the quadratic inequality: $x^2 + 3x - 4 > 0$. (4 marks)

Answer: _____

9) The length of a rectangle is 8 cm more than its width. If the perimeter is 48 cm, find the dimensions of the rectangle. (4 marks)

Answer: _____

10) Two similar triangles have a scale factor of 2:3. If the shorter triangle has an area of 36 cm^2, find the area of the larger triangle. (4 marks)

Answer: _____

11) In a quadrant, the bearing of A from B is 120°. If the bearing of B from A is 300°, find the bearing of A from the north. (4 marks)

Answer: _____

12) The line graph shows the temperature in a city over 10 days. On which day was the temperature highest? (1 mark) - Description: Line graph with temperature on the y-axis and days on the x-axis.

Answer: _____

13) A sample of 100 students is selected from a school of 500 students. The table shows the number of students in each grade. Estimate the number of students in the school who are in Grade 9. (3 marks) - Description: Table with grades (7, 8, 9, 10) and the number of

students in each grade.

Answer: _____

14) Find the prime factorization of 132. (2 marks)

Answer: _____

15) Express 2^(-3) as a decimal. (2 marks)

Answer: _____

16) Expand and simplify the expression (3a - 2)(a + 4). (3 marks)

Answer: _____

17) Factorize the expression 2x^2 - 9. (3 marks)

Answer: _____

18) Solve the equation $4(x - 3) = 2x + 8$. (3 marks)

Answer: _____

19) Find the next three terms in the geometric sequence: 6, 12, 24, ... (3 marks)

Answer: _____

20) Solve the inequality: $3x + 2 > 5x - 1$. (3 marks)

Answer: _____

21) Solve the quadratic inequality: $x^2 + 2x - 3 < 0$. (4 marks)

Answer: _____

22) The diagonal of a square has a length of 10 cm. Find the area of the square. (4 marks)

Mark Scheme and Answers: 1) 2^4 x 3 2) 5^2 3) $2x^2 + x - 3$ 4) $(3x + 4y)(3x - 4y)$ 5) $x = 6$ 6) 25, 30, 35 7) $x < -7/3$ 8) $x < -4$ or $x > 1$ 9) Length $= 18$ cm, Width $= 10$ cm 10) 54 cm^2 11) 240° 12) Day 6 13) 18 14) 2^2 x 3 x 11 15) 0.125 16) $3a^2 + 10a - 8$ 17) $(x - 3)(2x + 3)$ 18) $x = 6$ 19) 48, 96, 192 20) $x < 3/2$ 21) $-3 < x < 1$ 22) 50 cm^2

Answer: _____