

Mathematics Assessment

**Band 2 – Test 2**

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**Calculators allowed on questions with this symbol:**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Remember:

* The test is 1 hour long.
* You **must not** use a calculator for any question in this test without a calculator symbol.
* You will need: pen, pencil, protractor, rubber and a ruler.
* Some formulae you might need are on the next page.
* Try to answer all questions.
* Write all your answers and working in the spaces provided in this test paper – do not use any rough paper. Marks may be awarded for working.
* Check your work carefully.
* Don’t spend too long on one question. Leave it and try the next one.

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| Formulae Sheet |
| Perimeter, area, surface area and volume formulae |
| Sphere | Cone |
|  |  |
| Volume = $\frac{4}{3}$πr3Surface Area = 4πr2 | Volume = $\frac{1}{3}$ πr2hCurved Surface Area = πrl |

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| **A – Ratio and Proportion** |
| 1. | Write these fractions in order of size, starting with the smallest.$\frac{1}{3}$ $\frac{1}{6}$ $\frac{3}{4}$ $\frac{3}{5}$\_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_  | / 2 |
| 2. | Calculate:$\frac{7}{10}$ of 70ml \_\_\_\_\_\_ml73% of £500 £\_\_\_\_\_\_ | / 4 |
| 3. | Complete the table below:

|  |  |  |
| --- | --- | --- |
| **Fraction** | **Decimal** | **Percentage** |
| $\frac{1}{5}$  | 0.2 |  |
| $\frac{3}{10}$  |  | 30% |
|  | 0.65 | 65% |

  | / 3 |
| 4. | Here is a recipe for making 10 chocolate chip cookies.

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| **Chocolate Chip Cookies**Makes 10 cookies.100 g of flour60 g of sugar50 g of margarine40 g of chocolate chips2 eggs |

 Work out the amounts needed to make 15 chocolate chip cookies. \_\_\_\_ g of flour \_\_\_\_ g of sugar \_\_\_\_ g of margarine \_\_\_\_ g of chocolate chips \_\_\_\_ eggs  | / 3 |
| 5. | A pack of 9 toilet rolls costs £4.23. A pack of 4 toilet rolls costs £1.96. Which pack gives the better value for money? You must show all your working.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | / 3 |
| **B – Number**  |
| 6. | Beth says 20 − 5 × 3 is 45. Pat says 20 − 5 × 3 is 5Who is right? Give a reason for your answer.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Work out (12 + 9) ÷ 3 = \_\_\_\_\_  | / 3 |
| 7. | Round 3.294 to 1 decimal place.  \_\_\_\_\_\_ | / 1 |
| 8. | Find the lowest common multiple of 12 and 16.\_\_\_\_\_\_  | / 3 |
| **C - Algebra** |
| 9. | Draw the graph of x = -3 on the axes below. | / 1 |
| 10. | Here are the first 5 terms of an arithmetic sequence. 3, 7, 11, 15, 19Find an expression, in terms of *n*, for the *n*th term of the sequence. \_\_\_\_\_\_\_\_\_\_  | / 2 |
| 11. | Simplify 8*x* + 5*y* – 3*x* + *y*\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | / 2 |
| 12. | Work out the value of 5*x* + 2*y* when *x* = 4 and *y* = –1\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | / 2 |
| 13. | Solve 5f + 12 = 42f = \_\_\_\_\_\_ | / 2 |
| **D – Shape, Space and Measure** |
| 14. | Diagram **NOT** accurately drawnFind the size of angle C. \_\_\_\_\_ºExplain why triangle *ABC* is equilateral.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | / 2 |
| 15. | Diagram **NOT** accurately drawnMake an accurate drawing of this triangle. | / 3 |
| 16. | The diagram shows a triangular prism. In the space below, draw a sketch of a net for the triangular prism. | / 2 |
| 17. | Here are the plan and front elevation of a solid shape.On the grid below, draw the side elevation of the solid shape.     | / 2 |
| 18. | Diagram **NOT** accurately drawnWork out the area of the triangle.\_\_\_\_\_\_cm²  | / 2 |
| 19. | Change 7m3 to cm3.\_\_\_\_\_\_cm³  | / 2 |
| **E – Data Handling** |
| 20. | Ray and Clare are pupils at different schools. They each did an investigation into their teachers’ favourite colours. Here is Ray’s bar chart of his teachers’ favourite colours.Write down two things that are wrong with Ray’s bar chart.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | / 2 |
| 21. | Peter rolled a 6-sided dice ten times. Here are his scores. 3 2 4 6 3 3 4 2 5 4Work out the range of his scores. \_\_\_\_\_Work out the median of his scores. \_\_\_\_\_  | / 3 |
| **F - Probability** |
| 22. | A bag contains counters which are red or green or yellow or blue. The table shows each of the probabilities that a counter taken at random from the bag will be red or green or blue.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Colour** | **Red** | **Green** | **Yellow** | **Blue** |
| **Probability** | 0.2 | 0.3 |  | 0.1 |

 A counter is to be taken at random from the bag. Work out the probability that the counter will be yellow.  | / 2 |
| 23. | 56 students were asked if they watched tennis yesterday.20 of the students are boys.17 girls watched tennis.13 boys did not watch tennis.Use this information to complete the two way table.

|  |  |  |
| --- | --- | --- |
| **Boys** | **Girls** | **Total** |
| **Watched tennis** |  |  |  |
| **Did not watch tennis** |  |  |  |
| **Total** |  |  |  |

  | / 2 |