

Mathematics Assessment

**Band 3 – Test 3**

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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: compasses, 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. | Work out:$\frac{1}{3}$ + $\frac{2}{5}$3 $\frac{1}{4}$ x 2 $\frac{3}{5}$ | / 5 |
| 2. | Work out 24 ÷ 0.2\_\_\_\_\_  | / 3 |
| 3. | A concert ticket costs £45 plus a booking charge of 15%.Work out the total cost of a concert ticket.£\_\_\_\_\_\_\_\_  | / 3 |
| 4. | Write these numbers in order of size. Start with the smallest number.65% $\frac{3}{4}$ 0.72 $\frac{2}{3}$ $\frac{3}{5}$\_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ | / 2 |
| 5. | Ann, Bill and Colin are travelling in a car from Glasgow to Poole.Ann, Bill and Colin share the driving so that the distances they drive are in the ratio 3:4:4. Ann drives a distance of 210 km. Calculate the total distance they travelled from Glasgow to Poole.\_\_\_\_\_\_\_\_km  | / 3 |
| **B – Number**  |
| 6. | Using the information that 97 × 123 = 11 931 write down the value of9.7 × 12.3 = \_\_\_\_\_\_\_0.97 × 123 000 = \_\_\_\_\_\_\_ | / 2 |
| 7. | Use your calculator to work out the value ofWrite down all the figures on your calculator display. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Give your answer to 3 significant figures. \_\_\_\_\_\_\_  | / 3 |
| 8. | Simplify t4 × t6 \_\_\_\_\_\_\_Simplify p8 ÷ p5  \_\_\_\_\_\_\_ | / 2 |
| 9. | Write the reciprocal of 5. \_\_\_\_\_\_\_ | / 1 |
| **C - Algebra** |
| 10. | Expand 5t(t – 2) \_\_\_\_\_\_\_\_\_\_  | / 1 |
| 11. | Solve 7*p* + 2 = 5*p* + 8p = \_\_\_\_\_\_\_ | / 2 |
| 12. | The cost, in pounds, of hiring a car can be worked out using this rule.

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| Add 3 to the number of days’ hireMultiply your answer by 10 |

The cost of hiring a car for *n* days is *C* pounds.Write down a formula for *C* in terms of *n*. \_\_\_\_\_\_\_\_\_\_\_\_  | / 2 |
| 13. | Write down the inequality shown on the number line.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | / 1 |
| 14. | Complete the table of values for y = 2x + 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **x** | -2 | -1 | 0 | 1 | 2 |
| **y** |  | 1 | 3 |  |  |

On the grid, draw the graph of y = 2x + 3  | / 4 |
| **D – Shape, Space and Measure** |
| 15. | Diagram **NOT** accurately drawnFind the value of *x*. \_\_\_\_\_\_ºGive a reason for your answer.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Work out the value of *y*. \_\_\_\_\_\_ºGive a reason for your answer.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | / 4 |
| 16. | The diagram shows the position of a farm *F* and a bridge *B* on a map.Measure and write down the bearing of *B* from *F*. \_\_\_\_\_\_\_ºA church *C* is on a bearing of 125º from the bridge *B*.On the map, the church is 4cm from *B*.Mark the church with a cross () and label it *C.*  | / 3 |
| 17. | Diagram **NOT** accurately drawnThe diagram shows a rectangle inside a triangle. The triangle has a base of 12 cm and a height of 10 cm. The rectangle is 5 cm by 3 cm. Work out the area of the region shown shaded in the diagram.\_\_\_\_\_\_\_\_ cm²  | / 3 |
| 18. | Calculate the volume of this cube with edge length 4cm.\_\_\_\_\_\_\_\_ cm³  | / 2 |
| 19. | Daniel leaves his house at 07 00. He drives 87 miles to work. He drives at an average speed of 36 miles per hour. At what time does Daniel arrive at work?\_\_\_\_\_\_\_\_\_\_   | / 2 |
| **E – Data Handling** |
| 20. | The table gives information about the lunch arrangements of 720 students.

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| --- | --- | --- |
| **Choice** | **Frequency** | **Angle** |
| Full meal | 150 |  |
| Hot snack | 240 |  |
| Cold snack | 220 |  |
| Packed lunch | 110 |  |
| **Total** | **720** |  |

Draw an accurate pie chart to show this information. | / 3 |
| **F - Probability** |
| 21. | 2 die are thrown and their scores are added together. Copy and complete this sample space.

|  |  |
| --- | --- |
| Coin | Dice |
|  | **1** | **2** | **3** | **4** | **5** | **6** |
| **1** | 2 |  |  |  | 6 |  |
| **2** |  |  |  |  |  |  |
| **3** |  | 5 |  |  |  |  |
| **4** |  |  |  |  |  |  |
| **5** |  |  |  |  |  | 11 |
| **6** |  |  | 9 |  |  |  |

Use the diagram to find the probability scoring a 9. \_\_\_\_\_ | / 3 |