

Mathematics Assessment

**Band 3 – 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: 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.

|  |
| --- |
| 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:$\frac{2}{3}$ + $\frac{1}{7}$2 $\frac{1}{4}$ ÷ 1 $\frac{5}{6}$ | / 5 |
| 2. | Work out 3.4 x 1.7\_\_\_\_\_  | / 3 |
| 3. | Wayne bought an engagement ring for Tracy. The total cost of the ring was £420 **plus** VAT at 17%. Work out the cost of the ring.£\_\_\_\_\_\_\_\_  | / 3 |
| 4. | Write these numbers in order of size. Start with the smallest number.35% $\frac{1}{4}$ 0.4 $\frac{1}{3}$ $\frac{2}{5}$\_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ | / 2 |
| 5. | Three woman earned a total of £36. They shared the £36 in the ratio 7:3:2. Donna received the largest amount. Work out the amount Donna received.£\_\_\_\_\_\_\_\_  | / 3 |
| **B – Number**  |
| 6. | Use the information that 13 × 17 = 221 to write down the value of1.3 × 1.7 = \_\_\_\_\_\_\_22.1 ÷ 1700 = \_\_\_\_\_\_\_ | / 2 |
| 7. | Use your calculator to work out the value of (Write down all the figures on your calculator display. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Give your answer to 3 significant figures. \_\_\_\_\_\_\_  | / 3 |
| 8. | Simplify t6 × t2 \_\_\_\_\_\_\_Simplify  \_\_\_\_\_\_\_ | / 2 |
| 9. | Write the reciprocal of 3. \_\_\_\_\_\_\_ | / 1 |
| **C - Algebra** |
| 10. | Expand x(x + 3) \_\_\_\_\_\_\_\_\_\_  | / 1 |
| 11. | Solve 7*r* + 2 = 5*r* – 20r = \_\_\_\_\_\_\_ | / 2 |
| 12. | The amount Tom the plumber charges, in pounds, can be worked out using this rule.

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| Multiply the number of hours he works by 35Add 50 to your answer |

The cost of working for *h* hours is *T* pounds.Write down a formula for *T* in terms of *h*. \_\_\_\_\_\_\_\_\_\_\_\_ | / 2 |
| 13. | Show the inequality x ≤ 4 on the number line below. | / 1 |
| 14. | Complete the table of values for y = 3x + 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **x** | -2 | -1 | 0 | 1 | 2 | 3 |
| **y** | -5 |  | 1 |  |  |  |

On the grid, draw the graph of y = 3x + 1  | / 4 |
| **D – Shape, Space and Measure** |
| 15. |   Diagram **NOT** accurately drawnWrite down 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 two boats, *P* and *Q*. The bearing of a boat *R* from boat *P* is 060°. The bearing of boat *R* from boat *Q* is 310°. In the space above, draw an accurate diagram to show the position of boat *R*. Mark the position of boat *R* with a cross (). Label it *R*.  | / 3 |
| 17. | Work out the total area of the 6-sided shape. The diagram shows a 6-sided shape made from a rectangle and a right-angled triangle.\_\_\_\_\_\_\_\_ cm²  | / 3 |
| 18. | This cuboid has a volume of 200 cm³. Calculate the length of the missing edge.\_\_\_\_\_\_\_\_ cm  | / 2 |
| 19. | The distance from Liverpool to Prague is 1200 km.A flight from Liverpool to Prague lasts 4 hours.Work out the average speed of the aeroplane.\_\_\_\_\_\_\_\_\_\_ km/h  | / 2 |
| **E – Data Handling** |
| 20. | Bhavana asked some people which region their favourite football team came from. The table shows her results.

|  |  |  |
| --- | --- | --- |
| **Region** | **Frequency** | **Angle** |
| Midlands | 22 |  |
| London | 36 |  |
| Southern England | 8 |  |
| Northern England | 24 |  |
| **Total** |  |  |

Complete the accurate pie chart to show these results.Use the circle given below. | / 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 7. \_\_\_\_\_ | / 3 |