

Mathematics Assessment

**Bands 4-6 Problem Solving – Test 3**

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

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

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

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

Remember:

* The test is 1 hour long.
* You will need: pen, pencil, rubber and a ruler.
* 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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| 1. | An aerial photograph shows a campsite with a swimming pool. In the photograph, the pool measures 5 cm x 2 cm. The real pool in 25 m long. How wide is it?\_\_\_\_\_\_\_\_ m | / 3 |
| 2. | Four quarter circles are cut from a 10 cm square. Work out the shaded area and give your answer correct to 2 decimal places.\_\_\_\_\_\_\_\_\_\_ cm² | / 5 |
| 3. | Will says that $25^{^{-1}/\_{2}}$ x $64^{^{2}/\_{3}}$ = 80. Show that Will is wrong. | / 5 |
| 4. | A roof truss is made of wood. The vertical support bisects the horizontal span. Work out the total length of wood needed to make the truss. Give your answer correct to 1 decimal place.\_\_\_\_\_\_\_\_\_\_\_\_ m | / 4 |
| 5. | Two meals and a bottle of wine cost £36. The bottle of wine costs £3 more than a meal. How much do each cost?Wine: £ \_\_\_\_\_\_\_\_\_\_Meal: £ \_\_\_\_\_\_\_\_\_\_ | / 6 |
| 6. | The lines A and B are parallel. What is the equation of line B?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | / 5  |
| 7. | From P, a ship sails 3 km East and 5 km North to its destination. A helicopter flies from P directly to the ship. On what bearing from P should the helicopter fly? Give your answer correct to the nearest degree.\_\_\_\_\_\_\_\_\_\_° | / 5 |
| 8. | In a circuit, the resistance, R ohms, is inversely proportional to the current, I amps. When the resistance is 12 ohms, the current in the circuit is 8 amps. Find the current when the resistance in the circuit is 6.4 ohms.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amps | / 5 |
| 9. | The diagram shows a rectangle EFGH. Length EF is 24 cm. width FG is 3cm. The length of the rectangle decreases by 40% and the width increases by 30%. What is the overall percentage change to the area of the rectangle?\_\_\_\_\_\_\_\_\_ % \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | / 8 |