

Mathematics Assessment

**Bands 1-3 Problem Solving – Test 1**



**Calculators not allowed**

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

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

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

Remember:

* The test is 1 hour long.
* You **must not** use a calculator for any question in this test.
* 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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| 1. | Sumire can record up to 40 hours of television programmes on her TV recorder. She has already recorded 35 hours of programmes on the recorder. She wants to keep all these recordings. There are three more programmes Sumire wants to record.  Game show 50 minutes  Film 2 hours 40 minutes  Reality show 1 hour 35 minutes  Can Sumire record all three programmes on her TV recorder?  You must show all your working. | / 4 |
| 2. | Daniel carried out a survey of his friends’ favourite flavour of crisps. Here are his results.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Plain | Chicken | Bovril | Salt and vin. | Plain | | Salt and vin. | Plain | Chicken | Plain | Bovril | | Plain | Chicken | Bovril | Salt and vin. | Bovril | | Bovril | Plain | Plain | Salt and vin. | Plain |   (a) Show this information in a diagram.  (b) Write down the number of Daniel’s friends whose favourite flavour was Salt & Vinegar.  \_\_\_\_\_\_\_\_\_  (c) Which was the favourite flavour of most of Daniel’s friends?  \_\_\_\_\_\_\_\_\_ | / 5 |
| 3. | 40 members of Arwick Youth Club go on a trip to a leisure centre. They go in minibuses that can each seat up to 15 people. It costs £30 for each minibus and £150 for the group to have use of the leisure centre. How much will the trip cost per person? | / 6 |
| 4. | Simon spent ¼ of his wages on rent.  He spent 20% of his wages on food.  He spent 0.15 of his wages on clothes  Work out the fraction of his wages that he had left. | / 3 |
| 5. | The diagram shows a partly tiled wall.      Alfie is tiling the wall with black and grey tiles. He is going to use a total of 10 black tiles. Alfie is going to make a symmetrical pattern with the tiles.  (a) (i) On the diagram, show where Alfie could put the 4 black tiles he has left.  (ii) Work out the total number of grey tiles that Alfie uses to tile the wall.  \_\_\_\_\_\_\_\_\_  Alfie has 4 boxes of grey tiles and 1 box of black tiles.  Each box of tiles costs £6.20  (b) Work out the total cost of the tiles.  £\_\_\_\_\_\_\_\_\_\_\_ | / 5 |
| 6. | 64 small cubes are used to build a larger cube. How many of the small cubes are still missing?  \_\_\_\_\_  7 cubes are used to make this shape. Shade squares on this grid to show the plan of the shape. One cube has already been marked on the grid. | / 2 |
| 7. | The table gives information about an estate agent’s charges for selling a house.   |  |  | | --- | --- | | **Value of house** | **Estate agent’s charges** | | Up to £60 000 | 2% of the value of the house | | Over £60 000 | 2% of the first £60 000  plus  1% of the remaining value of the house |   Ken uses this estate agent to sell his house. The estate agent sold Ken’s house for £80 000. Work out the total charge that Ken will have to pay.  £\_\_\_\_\_\_\_\_\_ | / 4 |
| 8. | Mrs Miller is planning a party for 70 children. She will give each child a party bag to take home. She will put a hat and a toy in each party bag.  Party bags are sold in packs of 12  Hats are sold in packs of 8  Toys are sold in packs of 9  Mrs Miller buys the smallest possible number of packs of hats, toys and bags. Mrs Miller can fill more party bags than she needs. How many more? | / 4 |
| 9. | A supermarket sells 500g pots of yoghourt.  There is a special offer on yoghourt:  **Buy 2 pots and get a 3rd one free!**  A week later, the price of a single pot of yoghourt  is still the same, but the offer changes to:  **Buy 1 pot and get a second one half price!**  Is the second offer better than the first?  Show working to justify your answer. | / 4 |
| 10. | The two points A and B on the grid are the vertices of an isosceles triangle.  A is at (9, 10); B is at (6, 6).  (a) The other vertex of the isosceles triangle is at a point with whole number coordinates.  What could be the coordinates of the other vertex?  ( \_\_\_\_ , \_\_\_\_ )  (b) There are several other points with whole number coordinates that could  be the vertex of the isosceles triangle.  Give the co-ordinates of two more of these points.  ( \_\_\_\_ , \_\_\_\_ ) and ( \_\_\_\_ , \_\_\_\_ ) | / 3 |
| 11. | A bag contains only red counters and blue counters. There are 90 red counters in the bag. The probability of choosing a red counter from the bag is 0.3. How many blue counters are in the bag? | / 2 |
| 12. | A set of five numbers has:  a mode of 12  a median of 11  a mean of 10  What could the numbers be?  \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ | / 3 |
| 13. | Mr and Mrs Ledger took their grandson Harry to Chic’s Diner.    Mr Ledger started with soup. He had steak and chips for his main course and ice cream for dessert.  Mrs Ledger started with a prawn cocktail and a main course of fish and chips. She did not have a desert.  Harry didn’t have a starter. He had a main course of fish and chips and ice cream for dessert.  Mr and Mrs Ledger shared a bottle of red wine. Harry had a glass of fruit juice.  (a) Work out the total bill including the service charge.  £\_\_\_\_\_\_\_\_\_\_  Chic has now increased all of his prices by 6%.  (b) Work out the new price of fish and chips.  £\_\_\_\_\_\_\_\_\_\_ | / 7 |