Bands 3 – 5 Problem Solving – Test 2 Answers

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| 1. | 3.5 m ÷ 50 cm = 7 slabs  2 m ÷ 50 cm = 4 slabs  7 x 4 = 28 slabs  Matt does have enough  **or**  3.5 x 2 = 7 m² = 70 000 cm²  50 x 50 = 2500 cm²  70 000 ÷ 2500 = 28 slabs  Matt does have enough | 1 mark for slabs needed for width  1 mark for slabs needed for length  1 mark for 28 seen  1 mark for correct conclusion  **or**  1 mark for area of patio  1 mark for area of slab  1 mark for 28 seen  1 mark for correct conclusion | 4 |
| 2. | 0.7 x $287.50 = $208.25 (30% = $86.25)  £250 = $208.25  £1 = $0.83 | 1 mark for 30% or 70% of New York price calculated  1 mark for London price in dollars  1 mark for correct answer | 3 |

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| 3. | Scale factor = 2  Area scale factor = 2² = 4  4 x 100 = 400 cm²  **or**  = 100  Radius of A =  Radius of B =  Area of B = x  = x  = 400 cm² | 1 mark for linear scale factor  1 mark for area scale factor  1 mark for correct answer  **or**  1 mark for radius of A in terms of  1 mark for expression for area of B  1 mark for correct answer | 3 |
| 4. | 5x = x + 24  4x = 24  x = 6 | 1 mark for an equation  1 mark for 4x seen oe  1 mark for correct answer | 3 |
| 5. | 17.5 ÷ 5 = 3.5 mph  3.5 x 8 = 28 km  Sunita is correct | 1 mark for distance ÷ time  1 mark for correct answer  1 mark for 28 km seen  1 mark for correct conclusion | 4 |

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| 6. | Volume of pot = x 6² x 15 = 1696.46… cm³  1 L = 1000 cm³  15 000 ÷ 1696.46… = 8.84…  8 flowerpots can be filled **completely** | 1 mark for volume of flowerpot  1 mark for litre/cm³ conversion  1 mark for dividing total compost by volume of flowerpot  1 mark for correct answer | 4 |
| 7. | 5 : 1  5 – 1 = 4 parts difference  6 ÷ 4 = 1.5 kg  1.5 x 5 = 7.5 kg | 1 mark for ratio  1 mark for calculating parts difference  1 mark for calculating value of 1 part  1 mark for correct answer | 4 |
| 8. | 3h + 3r = 126  - 3h + 2r = 114  r = 12 cm  3h + 36 = 126  h = 30 cm  2r + h = 24 + 30 54 cm  **or**  Difference is 1 rectangle and 12 cm  3 x 12 = 36  (126 – 36) ÷ 3 = 30 cm  2 x 12 + 30 = 54 cm | 1 mark for 2 equations for r and h  1 mark for r calculated  1 mark for substituting r into either equation  1 mark for h calculated  1 mark for correct answer  **or**  1 mark for 12 cm calculated  1 mark for 3 x 12  1 mark for subtracting 36 and dividing by 3  1 mark for 30 cm calculated  1 mark for correct answer | 5 |

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| 9. | |  |  | | --- | --- | | **Bank A** | **Bank B** | | £4000 x 1.03² = £4243.60  **or**  £4000 x 0.03² = £243.60 | (£4000 x 0.32 x 2) + 4000 = £4256  **or**  (£4000 x 0.32 x 2) = £256 |   Henry should choose Bank B for more interest | 1 mark for Bank A calculation  1 mark for Bank A answer  1 mark for Bank B calculation  1 mark for Bank B answer  1 mark for correct conclusion (dependent on previous working) | 5 |
| 10. | A = 7, B = 3, C = 8, D = 3 | 1 mark for D calculated  1 mark for A calculated  1 mark for C calculated  1 mark for 18 seen  1 mark for B calculated | 5 |

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| 11. | 30 x £3 = £90 spent  40% of £3 = £1.20  Selling price = £3 + £1.20 = £4.20  of 30 = 18 books sold at £4.20  18 x £4.20 = £75.60  80% of £4.20 = £3.36 (20% = 84p)  12 x £3.36 = £40.32  £75.60 + £40.32 = £115.92  £115.92 - £90 = £25.92 profit  25.92 x 100 = 28.8% profit  90 | 1 mark for total spent  1 mark for new selling price  1 mark for income for this selling price  1 mark for 20% or 80% calculated  1 mark for income at this selling price  1 mark for total profit  1 mark for correct answer (accept percentage only, accept 29%) | 8 |