Bands 2 – 4 Problem Solving – Test 2 Answers

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| 1. | 24 ÷ 6 = 4 cm12 x 4 = 48 cm | 1 mark for length of one side1 mark for correct answer | 2 |
| 2. | 140 ÷ 30 = 4 $\frac{2}{3}$ hours = 4 hours 40 mins4 hours 40 mins + 20 mins + 45 mins = 5 hours 45 mins7:30 am + 5 hours 45 mins = 1:15 pm | 1 mark for 4 $\frac{2}{3}$ hours or 4 hours 40 mins seen1 mark for attempt to add all times together1 mark for 5 hours 45 mins seen1 mark for correct answer | 4 |
| 3. | 14059 – 12967 = 10921092 x 44 = 48048p = £480.48£480.48 ÷ 12 = £40.04 | 1 mark for 1092 seen1 mark for calculating total cost in pence1 mark for converting to £1 mark for ÷ 121 mark for correct answer | 5 |
| 4. | Farm shop: £15 ÷ 25 = 60p per kgSupermarket: £1.30 ÷ 2 = 65p per kgPotatoes are best value at farm shop | 1 mark for 15 ÷ 25 or 1.3 ÷ 21 mark for each correct price per kg1 mark for correct answer | 4 |
| 5. | Area = (12 + 18) x 0.5 x 9 = 15 x 9 = 135 m²135 ÷ 20 = 6 r 15 = 7 bags needed7 x £9.99 = £69.93 | 1 mark for calculating area of garden1 mark for 6, 6 r 15 or 7 seen1 mark for number of bags needed1 mark for correct answer | 4 |

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| 6. | BDC = 180 – (40 + 90) = 50° because angles in a triangle sum to 180°ADC = 180 – 50 = 130° because angles on a straight line sum to 180°DAC = (180 – 130) ÷ 2 = 25° because angles in a triangle sum to 180° and isosceles triangles have equal base angles | 1 mark for BDC calculated1 mark for ADC calculated2 marks for correct answer (only award if at least 2 reasons given)(1 mark if no reasons evident) | 4 |
| 7. | 1 L purple fire 🡪 750 (r) : 250 (b)500 ml purple sea 🡪 125 (r) : 375 (b) +Total 🡪 875 (r) : 625 (b)625 x 3 = 1875 ml red needed1875 – 875 = 1000 ml = 1 L | 1 mark for each mixture’s ratio1 mark for adding ratios together1 mark for 1875 seen1 mark for correct answer oe | 5 |
| 8. | (0 + 0.5) x 2 = 1(1 + 0.5) x 2 = 3(3 + 0.5) x 2 = 7(7 + 0.5) x 2 = 15(15 + 0.5) x 2 = 31 | 1 mark for + 0.5 or x 2 seen1 mark for at least 2 iterations attempted1 mark for correct answer | 3 |
| 9. | 1200 – 650 = 550 L needed550 x 70 = 38500p = £3855% of £385 = £19.25£385 - £19.25 = £365.75 | 1 mark for amount of fuel needed1 mark for cost of fuel before discount1 mark for calculating 5% of £3851 mark for £385 - %51 mark for correct answer | 5 |

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| 10. | £2.10 ÷ 10 = 21p£4.50 ÷ 18 = 25p£13.20 ÷ 12 = £1.1021p + 25p + £1.10 = £1.56

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| **10** | **18** | **12** |
| 10 | 18 | 12 |
| 20 | 36 | 24 |
| 30 | 54 | 36 |
| 40 | 72 | 48 |
| 50 | 90 | 60 |
| … | … | … |
| 180 | 180 | 180 |

180 party bags | 1 mark for 1 correct calculation for an individual item1 mark for 21p, 25p and £1.10 seen1 mark for correct answer1 mark for listing 5 or more multiples correctly of any number1 mark for listing correct multiples for all 3 numbers1 mark for correct answer | 6 |
| 11. | $24000 ÷ 1.2 = £20 000£20 000 + £900 = £20 90020% of £20 900 = £4180£20 900 + £4180 = £25 080 | 1 mark for calculating cost of car in pounds1 mark for adding £900 or calculating 20%1 mark for correct answer | 3 |
| 12. | 2000 x 12 = 24000 miles per year24000 ÷ 50 = 480 gallons of petrol480 x £5 = £1200£0.10 x 24000 = £24001200 + 2400 = £3600 total cost£0.30 x 24000 = £7200 paid£7200 - £3600 = £3600 so Barbara will NOT have enough for her holiday | 1 mark for total miles per year1 mark for gallons of fuel needed1 mark for total cost of fuel1 mark for total cost to Barbara1 mark for total amount paid to Barbara1 mark for correct conclusion | 6 |