Bands 2 – 4 Problem Solving – Test 1 Answers

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| 1. | 35% of 160 = 56 thrillers2/5 of 160 = 64 comedies160 – (56 + 64) = 40 science fictions | 1 mark for calculating number of thrillers1 mark for calculating number of comedies1 mark for adding and subtracting from total1 mark for correct answer | 4 |
| 2. | 4 m ÷ 20 cm = 20 tiles wide3m ÷ 20 cm = 15 tiles high20 x 15 = 300 tiles needed300 ÷ 10 = 30 packs needed30 x £35 = £1050Alison cannot buy enough tiles | 1 mark for area of wall1 mark for area of tile1 mark for total tiles needed**or**1 mark for tiles needed for width1 mark for tiles needed for length1 mark for total tiles needed**then**1 mark for packs needed1 mark for correct answer1 mark for correct conclusion | 6 |
| 3. | ACB = 360 – (216 + 90) = 54° because angles around a point sum to 180°ABC = (180 – 54) ÷ 2 = 63° because angles in a triangle sum to 180° and isosceles triangles have equal base angles | 1 mark for 54° seen1 mark for correct answer2 marks for 2 or more valid reasons | 4 |
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| **Sports ‘4’ All**12 x £4.50 = £54£54 + £5 = £59 | **Edexcel Sports**1/5 of £70 = £14£70 - £14 = £56 | **Keef’s Sports**20% of £50 = £10£50 + £10 = £60 |

Samantha should buy her trainers from Edexcel Sports | 1 mark for 12 x £4.501 mark for each correct total price1 mark for correct conclusion  | 5 |
| 5. | 5 m ÷ 20 cm = 25 boxes high10 m ÷ 50 cm = 20 boxes long4 m ÷ 40 cm = 10 boxes wide25 x 20 x 10 = 5000 boxes**or**500 x 1000 x 4000 = 2000 000 000 cm³20 x 50 x 40 = 40 000 cm³2000 000 000 ÷ 40 000 = 5000 boxes | 1 mark for boxes needed for each dimension1 mark for correct answer**or**1 mark for volume of container1 mark for volume of box1 mark for container ÷ box1 mark for correct answer | 4 |
| 6. | 100 + 10x = 150 10x = 50 x = 5Plus 2 rooms = 7 people | 1 mark for £100 or 2 x £50 seen1 mark for 5 people seen1 mark for correct answer | 3 |
| 7. | 30 – 8 = 22 cm22 ÷ 2 = 11 cm11 + 8 = 19 cm | 1 mark for subtracting 8 from 301 mark for ÷2 seen1 mark for correct answer | 3 |

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| 8. | 786 ÷ 3 x 5 = 1310 attending in total1310 – 786 = 524 adults(524 x 2t) + (786 x t) = 11921 1048t + 786t = 11921 t = £6.50 2t = £13 | 1 mark for total number attending1 mark for number of adults1 mark for equation equal to £119211 mark for calculating child ticket1 mark for correct answer | 5 |
| 9. | £240 ÷ 3 : 5 = £90 : £150½ of £90 = £451/10 of £150 = £15£45 + £15 = £60$\frac{60}{240}= \frac{1}{4}$  | 1 mark for dividing into ratio1 mark for calculating Colin’s share from Ann1 mark for calculating Colin’s share from Bob1 mark for correct answer oe (accept fractions only) | 4 |
| 10. | (4 x 24) – 24 = 72 cm | 1 mark for 4 x 24 or 3 x 241 mark for correct answer | 2 |
| 11. | 5 miles = 8 km so 1 mile = 1.6 km30 mph = 48 km/h4 lampposts = 150 mDistance ÷ Time = 150 m ÷ 12 sec x 3600 ÷ 1000 = 45 km/h | 1 mark for 5 : 8 oe1 mark for 150 m seen1 mark for 150 ÷ 12 oe1 mark for x 3600 or ÷ 1000 seen1 mark for correct answer | 5 |

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| 12. |

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| **+** | **1** | **2** | **3** | **4** | **5** | **6** |
| **1** | 2 | 3 | 4 | 5 | 6 | 7 |
| **2** | 3 | **4** | **5** | **6** | **7** | **8** |
| **3** | 4 | **5** | **6** | **7** | **8** | **9** |
| **4** | 5 | **6** | **7** | **8** | **9** | **10** |

P(lose 50p) = 14/24P(win £1) = 7/24P(win £2) = 3/24Profit = 14/24 x 360 x 50p = £105Loss in prizes = (7/24 x 360 x £1) + (3/24 x 360 x £2) = £105 + £90 = £195Total loss of £90 | 2 marks for complete sample space diagram (1 mark lost for each error)1 mark for all probabilities stated1 mark for profit calculation1 mark for each loss calculation1 mark for correct answer | 7 |