Bands 4 – 6 Problem Solving – Test 2 Answers

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| 1. |  **or**  | 1 mark for a 3 cm line drawn1 mark for compass lines drawn at 3 cm1 mark for first complete triangle3 marks for other 3 triangles drawn to complete the net | 6 |
| 2. | AB = 12.5 cm5 : 12.5 = 2 : 57 : 17.5 cm (BC)6 : 1515 – 6 = 9 cm (EC)7.5 + 7 + 17.5 + 9 = 41 cm | 1 mark for AB calculated1 mark for 2 : 5 seen oe1 mark for BC calculated1 mark for EC calculated1 mark for adding side lengths1 mark for correct answer | 6 |

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| 3. | L = $\sqrt{9^{2}+ 4^{2}}$ = $\sqrt{81+16}$ = $\sqrt{97}$ = 9.8488…$π$rL = $π$ x 4 x 9.8488… = 123.76439… = 123.8 cm² | 1 mark for 9² or 4² or √ seen1 mark for L calculated1 mark for L and r substituted into formula1 mark for 123 seen1 mark for correct answer | 5 |
| 4. | P(corn AND puff OR puff AND corn = $\left(\frac{5}{12} x \frac{7}{11}\right)+ \left(\frac{7}{12} x \frac{5}{11}\right)$ = $\frac{35}{121}$ + $\frac{35}{121}$ = $\frac{70}{121}$ | 1 mark for first choice shown on probability tree diagram1 mark for second choice shown on probability tree diagram1 mark for correct branches chosen1 mark for adding/multiplying correctly1 mark for correct answer | 5 |

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| 5. | 215 ÷ 40 = 5.375 cm | 1 mark for calculating distance on map1 mark correct angle1 mark for correct distance | 3 |
| 6. | x + 2y = 18x + 3y = 21 y = 3x + 6 = 18 x = 12£12 line rental | 1 mark for each equation from question1 mark for cost per hundred minutes1 mark for substituting cost per 100 minutes1 mark for correct answer | 5 |
| 7. | x(x – 5) = x² - 5x (x – 7)² = x² - 14x + 49 | 1 mark for (x – 5) seen1 mark for correct answer (expanded correctly)1 mark for (x – 7) seen1 mark for correct answer (expanded correctly) | 4 |

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| 8. | $\frac{30}{600}$ = $\frac{1}{20}$ of the bats are tagged$\frac{1}{20}$ of 40 bats = 2 bats tagged | 1 mark for $\frac{30}{600}$ seen1 mark for $\frac{1}{20}$ of 401 mark for correct answer | 3 |
| 9. | 500 x 9 x 10-3= 5 x 102 x 9 x 10-3= 45 x 10-1= 4.5 cmThe paper tray is **not** deep enough | 1 mark for multiplying 500 x 9 x 10-31 mark for 45 x 10-11 mark for 4.5 cm1 mark correct conclusion | 4 |
| 10. | EB = $\sqrt{5^{2}+ 12^{2}}$ = $\sqrt{25+144}$ = $\sqrt{169}$ = 13 cm13 – 4 = 9 cmtan-1 $\left(\frac{5}{12}\right)$ = 22.6…°9 x tan 22.6… = 3.75 cm | 1 mark for 5² and 12² seen1 mark for EB or AB calculated1 mark for calculations for angle EBD1 mark for angle EBD1 mark for calculations for side AC1 mark for correct answer | 6 |