Bands 4 – 6 Problem Solving – Test 3 Answers

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| 1. | 5 cm : 25 m  1 cm : 5 m  2 cm : 10 m  10 m wide | 1 mark for 5 : 25 seen  1 mark for scale factor 5 or x5 seen  1 mark for correct answer | 3 |
| 2. | Radius = 5 cm  Area = 10² -  = 100 -  = 100 – 78.5398…  = 21.46 cm² | 1 mark for radius calculated  1 mark for seen  1 mark for 78 seen  1 mark for 100 seen  1 mark for correct answer | 5 |
| 3. | x  = x  = x 8  = | 1 mark for  1 mark for simplifying  1 mark for  1 mark for simplifying  1 mark for correct answer | 5 |
| 4. | = 7.2111…  2 x 7.2111… + 12 + 4 = 30.4 m | 1 mark for 6² or 4² seen  1 mark for √52 or 7.2111… seen  1 mark for adding lengths together  1 mark for correct answer | 4 |
| 5. | 2m + w = 36  w = m + 3  2m + (m + 3) = 36  3m = 33  m = 11  w = m + 3 = 11 + 3 = 14  A meal costs £11 and wine costs £14 | 1 mark for each equation from question  1 mark for substituting w into equation  1 mark for m calculated  1 mark for substituting w into equation  1 mark for w calculated | 6 |
| 6. | Gradient A = 8 ÷ 4 = 2  Gradient A = Gradient B  y = 2x + c  0 = 2 x 10 + c  C = -20  y = 2x - 20 | 1 mark for gradient of A calculated  1 mark for gradient of B calculated  1 mark for substituting m into equation of line with coordinate (10, 0)  1 mark for y-intercept calculated  1 mark for correct answer | 5 |
| 7. | tan-1 = 59°  90 – 59 = 31°  031° | 1 mark for tan used  1 mark for 59 seen  1 mark for 90 – 59  1 mark for 31 seen  1 mark for correct answer | 5 |
| 8. | R  12 =  k = 96  R =  6.4 =  I = = 15 amps | 1 mark for proportion sentence  1 mark for substituting R and I  1 mark for finding k  1 mark for substituting 6.4  1 mark for correct answer | 5 |
| 9. | Area = 24 x 3 = 72 cm²  0.6 x 24 = 14.4 cm (new length)  1.3 x 3 = 3.9 cm (new width)  New area = 14.4 x 3.9 = 56.16 cm²  72 – 56.16 = 15.84 cm² (actual change)  x 100 = 22% decrease | 1 mark for original area  1 mark for new length  1 mark for new width  1 mark for new area  1 mark for actual change  1 mark for x 100  1 mark for 22%  1 mark for decrease | 8 |