Band 6 – Test 3 Answers

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | 100x = 45.4545…- x = 0.4545… 99x = 45 x = $\frac{45}{99}$ = $\frac{5}{11}$ | 1 mark for x1001 mark for calculating x1 mark for answer in simplest form | 3 |
| 2. | UB C = 170.5 UB d = 54.5LB C = 169.5 LB d = 53.5UB $\frac{C}{d}$ = $\frac{170.5}{53.5}$ = 3.18 LB $\frac{C}{d}$ = $\frac{169.5}{54.5}$ = 3.11 | 1 mark for correct UB/LB circumference1 mark for correct UB/LB diameter1 mark for each correct answer | 4 |
| 3. | √60 = 4 x √15 = 2√15 | 1 mark for correct working1 mark for correct answer | 2 |
| 4. | Gradient = -1 ÷ 2 = -½y = -½x + c7 = -½(4) + cc = 9y = -½x + 9 | 1 mark for gradient1 mark for y-intercept1 mark for correct answer | 3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **x** | -2 | -1 | 0 | 1 | 2 |
| **y** | 1/16  | 1/4  | 1 | 4 | 16 |

 | 1 mark for at least 2 y values correctOr 2 marks for all y values correct1 mark for coordinates plotted correctly1 mark for correct graph drawn | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| 6. | x³ - 3x² - 2x + 5 = 0 x³ - 2x + 5 = 3x² $\frac{x^{3}-2x+5}{3}$ = x$²$ $\sqrt{\frac{x^{3}-2x+5}{3} }$ = xx1 = 2.9439…x2 = 2.8650…x3 = 2.7561…x4 = 2.6091… = 2.609 | 1 mark for isolating x²1 mark for correct answer1 mark for at least 2 correct iterations1 mark for answer rounded correctly | 4 |
| 7. | x = ¾ or -1/3  | 1 mark for correct working1 mark for correct factorisation1 mark for correct answer | 3 |
| 8. | x² + x – 3 = 0$$x=\frac{-1\pm \sqrt{1^{2}-4(1)(-3)}}{2(1)}$$$$x=\frac{-1\pm \sqrt{1+12}}{2}$$x = 1.30 or -2.30 | 1 mark for rearranging to equal 01 mark for correct substitution1 mark for correct answer | 3 |
| 9. |  | 1 mark for dotted line1 mark for correct side indicated | 2 |
| 10. |  | 1 mark for C of E correctly identified1 mark for SF -21 mark for correct enlargement | 3 |
| 11. | $\sqrt{3^{2}+ 5^{2}+ 7^{2}}= \sqrt{83}$ = 9.1104… = 9.11 cm | 1 mark for 2 dimensions squared1 mark for correct working1 mark for correct conclusion | 3 |
| 12. | $\sqrt{12^{2}+ 2^{2}}= \sqrt{148}$ = 12.1655…tan-1$\left(\frac{5}{\sqrt{148}}\right)$ = 22.342538… 22.3º | 1 mark for $\sqrt{148}$ oe1 mark for tan used1 mark for correct working1 mark for answer rounded correctly | 4 |
| 13. | ½ x 11.7 x 28.3 x sin67 = 143.80629… = 144 cm² | 1 mark for correct substitution1 mark for correct working1 mark for correct answer | 3 |

|  |  |  |  |
| --- | --- | --- | --- |
| 14. | 6 ÷ 4 = 1.580 x $1.5^{3}$ = 270 cm³ | 1 mark for sf 1.51 mark for correct working1 mark for correct answer | 3 |
| 15. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Weight (*w* g.)** | **Frequency** | **Midpoint** | **M x f** |
| 50 ≤ *w* < 60 | 5 | 55 | 275 |
| 60 ≤ *w* < 70 | 9 | 65 | 585 |
| 70 ≤ *w* < 80 | 22 | 75 | 1650 |
| 80 ≤ *w* < 90 | 27 | 85 | 2295 |
| 90 ≤ *w* < 100 | 17 | 95 | 1615 |

6420 = 80.25 grams 80 | 1 mark for correct third column1 mark for correct fourth column1 mark for Σmf Σf1 mark for correct answer rounded correctly | 4 |
| 16. | 4 < x ≤ 64 < x ≤ 6 | 1 mark for each correct answer | 2 |