| **Question** | **Working** | **Answer** | **Mark** | **Notes** |
| --- | --- | --- | --- | --- |
| 1  |  |  | 3*a* + 7*b* | 2 | B2 for 3*a* + 7*b* oe(B1 for 3*a* or 7*b* oe) |
| 2 (i) (ii) (iii) |  |  | 1193111931123 | 3 | B1 caoB1 caoB1 cao |
| 3(a)3(b)3(c) |  |  | Points plottedPositive155 - 165 | 112 | B1 for correct points plotted ± 0.5 squareB1 for positive correlationB2 for an answer in the range 155 – 165(B1 for a line of best fit drawn if answer outside the range) |
| 4 |  | 30 × 30 × 80 ÷ 6 × 6 × 1072000 ÷ 360Or 30 ÷ 6 × 30 ÷ 6 × 80 ÷ 105 × 5 × 8 | 200 | 3 | M1 for 30 × 30 × 80 ÷ 6 × 6 × 10 Or 30 ÷ 6 × 30 ÷ 6 × 80 ÷ 10M1 for 72000 ÷ 360 Or 5 × 5 × 8A1 cao |
| \*5(a)\*5(b) |  |  | Response boxes too vagueNo time period or vague response boxes | 11 | C1 for a valid explanationC1 for a valid explanation |
| 6(a)6(b) |  |  |  | 22 | B2 cao(B1 for a 2x3 rectangle only)B2 for an accurate 3D sketch(B1 for a 3D sketch with an “L’- shaped cross section) |
| 7 (i) (ii) |  | 180 – 113  | 67corresponding (alternate) anglesangles on a straight line sum to 180o | 4 | M1 for 180 – 113A1 caoB1 for corresponding (alternate) anglesB1 for angles on a straight line sum to 180o |
| 8(a)8(b) |  |  | Diagrams drawn, bar charts, pie charts, frequency polygon, stem & leafGerman marks higher than French marks, for example | 31 | B3 for fully labeled comparative diagrams(Deduct one mark for each omission or error type)B1 for any correct comparison made |
| 9 |  | Sports 4 all: 5 + 4.5 x 12 = £59Edexcel: 70 x 4/5 = £56Keef’s: 50 x 1.2 = £60 | Edexcel Sports gives the best deal since £56 is the least cost  | 5 | M1 for 5 + 4.5 x 12M1 for 70 x 4/5M1 for 50 x 1.2A1 for fully correct arithmeticC1 ft for Edexcel Sports supported by ‘correct’ prices |
| 10 |  |  | 42 cm3 | 3 | B3 for fully correct diagram(B2 for 4 out of 6 squares correctly placed,B1 for 2 out of 6 squares correctly placed) |
| 11 |  | Stuart: *r ×* 4 + *b ×* 1 = 4*r* + *b*Helen: 2 *×* 4 + 2*b ×* 1 = 8 + 2*b* | 4*r* + 3*b* + 8 | 4 | M1 for *r ×* 4 + *b ×* 1 (= 4*r* + *b*)B1 for 2*b* for Helen’s blue cardsM1 for 2 *×* 4 + 2*b ×* 1 (= 8 + 2*b*)A1 cao |
| 12 |  | *x* + 4 + *x* + 3 + *x* – 1 = 3*x* + 6 3*x* + 6 = 193*x* = 13 | 13/3 oe | 3 | M1 for *x* + 4 + *x* + 3 + *x* – 1 (= 3*x* + 6)M1 for 3*x* + 6 = 19A1 for 13/3 oe |
| 13 |  | 60000 × 2/100 = 1200(80000 – 60000) × 1/100 = 2001200 + 200 | 1400  | 4 | M1 for 60000 × 2/100 (= 1200)M1 for 80000 – 60000M1 for ‘80000 – 60000’ × 1/100 (= 200)A1 cao |
| 14 (i) (ii) |  | 360 - 140 | 060220 | 3 | B1 caoM1 for 360 – 140A1 cao |
| 15(a)15(b) |  |  = 5 – 2 = 3 | 3 | 23 | M1 for changing to a common denominator with at least one correct numeratorA1 caoM1 for 5 – 2 = 3M1 for A1 for 3 oe |
| 16 |  |  | perpendicular | 2 | B2 for a correct perpendicular constructed with accurate intersecting arcs.(B1 for a perpendicular drawn) |
| 17(a)17(b) |  |  | 10000 < *x* ≤ 1400014000 < *x* ≤ 16000 | 1 | B1 caoB1 cao |
| 18 |  | *x* = (-5 + 7)/26 = (1 + *y*)/2 | 1, 11 | 2 | M1 for either *x* = (-5 + 7)/2 or 6 = (1 + *y*)/2A1 for *x* = 1 and *y* = 11[B1 for either *x* = 1 or *y* = 11 if M0 scored] |
| 19(a)19(b)19(c)19(d) |  | *t*2 + 5*t* – 4t - 20 | 5(*x* – 2)2*p*(*p* – 2*q*)*t*2 + t – 20-2, -1, 0, 1, 2 | 1222 | B1 caoB2 cao(B1 for correct partial factorization)M1 for 3 out of 4 correct terms or 4 terms with incorrect signs onlyB2 for all 5 correct integers and no extras(-1 for each error or omission up to a maximum of -2) |
| 20 |  | N boys 2N girls3N/5 + 2N/10 = 4N/54N/5 ÷ 3N | 4/15 | 4 | M1 for 3N/5 or 2N/10 oeM1 for 3N/5 + 2N/10 oeM1 for ‘4N/5’ ÷ 3NA1 for 4/15 oe |
| 21 |  | 4*x* – 6*y* = 2215*x* + 6*y* = 7419*x* = 962 x 4 – 3*y* = 11 | *x* = 4, *y* = -1 | 4 | M1 for a correct process to eliminate either *x* or *y* (condone one arithmetic error)A1 for either *x* = 4 or *y* = -1M1 (dep on 1st M1) for correct substitution of their found variableA1 for both *x* = 4 and *y* = -1 |
| 22(a)22(b) |  | Stars: 4/9 x 3/8 = 12/72Hearts: 3/9 x 2/8 = 6/7212/72 + 6/72 = 18/721440 x 12/72 x 1.50 = 3601440 x 6/72 x 2 = 2401440 – 360 - 240 | ¼ 840 | 34 | M1 for 4/9 x 3/8 (= 12/72) or 3/9 x 2/8 (= 6/72)M1 for ‘12/72’ + ‘6/72’A1 for ¼ oe M1 for 1440 x 12/72 or 1440 x 6/72 M1 for 1440 x 12/72 x 1.50 (= 360) or 1440 x 6/72 x 2 (= 240)M1 for 1440 – ‘360’ – ‘240’A1 cao |
| 23(a)23(b) |  | Angle *XBD* = 60/2 = 30Angle *DAC* = 90 – 60 = 30*AD* = √(22 – 12) = √3*XD/CD = BD/AD**XD/*1 = 1/√3 | ProofProof  | 23 | B1 for all correct anles of 30, 60 and 90 shownB1 for ‘triangles BXD and ACD have identical corresponding angles, both being 30, 60, 90 degree triangles’ for exampleM1 for *AD* = √(22 – 12) (= √3)M1 for *XD/CD = BD/AD* oeA1 for completing the proof |
| 24 |  | (*x* – 3)(*x* + 3) (2*x* + 3)(*x* – 3) |  *x* + 3 2*x* + 3 | 3 | M1 for (*x* – 3)(*x* + 3) M1 for (2*x* + 3)(*x* – 3)A1 cao |
| 25 |  | 2*t*(√8 - √2) = 64 = 262*t*(2√2 - √2) = 262*t* x √2 = 262*t* x 21/2  = 26*t* + ½ *=* 6 | 5½  | 5 | M1 for 2*t*(√8 - √2) = 64M1 for 2*t*(2√2 - √2) = 64M1 for 2*t* x 21/2  = 26M1 for *t* + ½ *=* 6A1 cao |
| 26 |  | 3G, 4R 1G, 3Y 3/7 x 1/4 | 3/28 | 3 | M1 for 3/7 or ¼M1 for 3/7 x ¼A1 for 3/28 oe |
| 27 (i) (ii) (iii) |  |  | 1001004 | 3 | B1 caoB1 caoB1 cao |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Quest. | Topic/name | AO1 | AO2 | AO3 | Total |  | FE | Nu | Man Alg | NonMan alg | G | S | Total#1 | Low | Mid. | High | Total#2 |
| 1 | Simplify | 2 |  |  | 2 |  |  |  | 2 |  |  |  | 2 | 2 |  |  | 2 |
| 2 | Numbercalcs | 3 |  |  | 3 |  |  | 3 |  |  |  |  | 3 | 3 |  |  | 3 |
| 3 | Height/Wt | 2 | 2 |  | 4 |  |  |  |  |  |  | 4 | 4 | 4 |  |  | 4 |
| 4 | Light bulbs | 3 |  | 3 |  | 3 |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 5 | Questionnaire | 2 |  |  | 2 |  | 2 |  |  |  |  | 2 | 2 | 2 |  |  | 2 |
| 6 | 3D sketch | 4 |  |  | 4 |  |  |  |  |  | 4 |  | 4 | 4 |  |  | 4 |
| 7 | Parallel lines | 2 | 2 |  | 4 |  |  |  |  |  | 4 |  | 4 | 4 |  |  | 4 |
| 8 | Languages | 4 |  | 4 |  |  |  |  |  |  | 4 | 4 | 4 |  |  | 4 |
| 9 | Trainers |  |  | 5 | 5 |  | 5 | 5 |  |  |  |  | 5 | 5 |  |  | 5 |
| 10 | Symmetry | 3 |  |  | 3 |  |  |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 11 | Cards |  |  | 4 | 4 |  |  |  | 4 |  |  |  | 4 | 4 |  |  | 4 |
| 12 | Perimeter  |  | 3 | 3 |  |  |  | 3 |  |  |  | 3 | 3 |  |  | 3 |
| 13 | estate agent |  | 4 | 4 |  | 4 | 4 |  |  |  |  | 4 | 4 |  |  | 4 |
| 14 | Bearings | 3 |  |  | 3 |  |  |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 15 | Fractions | 5 |  |  | 5 |  |  | 5 |  |  |  |  | 5 | 2 | 3 |  | 5 |
| 16 | Construction | 2 |  |  | 2 |  |  |  |  |  | 2 |  | 2 |  | 2 |  | 2 |
| 17 | Class intervals | 2 |  |  | 2 |  |  |  |  |  |  | 2 | 2 | 1 | 1 |  | 2 |
| 18 | Midpoint |  | 2 |  | 2 |  |  |  |  | 2 |  |  | 2 |  | 2 |  | 2 |
| 19 | Factorise | 7 |  |  | 7 |  |  |  | 7 |  |  |  | 7 | 1 | 6 |  | 7 |
| 20 | Sporty students | 4 |  | 4 |  |  | 4 |  |  |  |  | 4 |  | 4 |  | 4 |
| 21 | Sim Equns | 4 |  |  | 4 |  |  |  | 4 |  |  |  | 4 |  | 4 |  | 4 |
| 22 | Summer Fete | 3 | 4 | 7 |  | 7 | 2 |  |  |  | 5 | 7 |  |  | 7 | 7 |
| 23 | Sim Triang | 3 | 2 | 5 |  |  |  |  |  | 5 |  | 5 |  |  | 5 | 5 |
| 24 | Alg fraction | 3 |  |  | 3 |  |  |  | 3 |  |  |  | 3 |  |  | 3 | 3 |
| 25 | Ind and Surds | 5 |  | 5 |  |  | 2 | 2 |  | 1 |  | 5 |  |  | 5 | 5 |
| 26 | sweets |  | 3 |  | 3 |  |  |  |  |  |  | 3 | 3 |  |  | 3 | 3 |
| 27 | Trig graph | 3 |   |   | 3 |   |   |   |   | 3 |   |   | 3 |   |   | 3 | 3 |
|  | Totals | 47 | 31 | 22 | 100 | 0 | 21 | 25 | 25 | 5 | 25 | 20 | 100 | 52 | 22 | 26 | 100 |
|  | Percentage | 47.0 | 31.0 | 22.0 | 100.0 |  | 21.0 |  | Al: | 30 |  |  |  | 52.0 | 22.0 | 26.0 |  |
|  | Foundation % target: | 40-50 | 30-40 | 15-25 |  |  | 30-40 |  |  |  |  |  | Target %: | 50 | 25 | 25 |  |
|  | Higher % target: | 40-50 | 30-40 | 15-25 |  |  | 20-30 |  |  |  |  |  |  |  |  |  |  |