

| Paper 5523/04 | | | | |
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| No | Working | Answer | Mark | Notes |
| 1 | (a) | 7 17 24 13 19 32 20 36 56 | 3 | B3 all correct (B2 for either 2 rows or 2 columns correct) (B1 for either 1 row or 1 column correct) |
| | (b) | $\frac{20}{56}$ | 2 | B2 ft for $\frac{20}{56}$ oe (B1 for $k/56$ with $0 < k < 56$) |
| 2 | Area of field = 54.5×35.5 (=1934.75) Cost of field = "1934.75" \times 11.44 Perimeter = $2(54.5+35.5)$ (=180) Cost of hedge = "180" \times 4.81 (=865.80) Total cost = £22 999.34 So Mrs Fox can buy field & hedge | Mrs Fox can buy field & hedge | 6 | M1 for either 54.5×35.5 or 1934.75 M1 for "1934.75" \times 11.44 or 22133.54 seen M1 for $2(54.5+35.5)$ or better M1 for either "180" \times 4.81 or 865.8 seen A1 for 22133.54 and 865.8 B1 ft for making a correct comparison between their total and £23 000 |
| 3 | (a) | $(-5) -2, (1) 4 7 10$ | 2 | B2 cao (B1 for at least 2 correct missing values) |
| | (b) | Graph | 2 | B1 ft for plotting 4 points —1sq B1 cao for line between $x = -2$ and $x = 3$ |
| | (c) | (i) -1.4 (ii) 2.4 | | B1 for -1.4 or ft straight line segment with positive gradient (± 1 sq) B1 for 2.4 or ft straight line segment with positive gradient (± 1 sq) |
| 4 | (a) | $\text{£}800 \times 10/100 = \text{£}80$ $\text{£}80 + \text{£}125 =$ | 3 | M1 for $800 \times 10/100$ oe M1 (dep) for "80" + 125 A1 cao |
| | (b) | $\text{£}225 - \text{£}125 = \text{£}100$ £100 is 10% of value of items Value of items is $\text{£}100 \times 100 \div 10 =$ | 3 | M1 for $225 - 125$ M1 for recognising that "100" is equivalent to 10% A1 cao |

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| 5 | (a) $4x = 7 + 1$ (b) $10y + 15 = 20$ $10y = 20 - 15$ $y = 5/10$ | 2 0.5 | 2 3 | M1 for $4x = 7 + 1$ A1 cao B1 for $10y + 15$ or $2y + 3 = 20/5$ M1 for correct rearrangement of their 3 terms to isolate $10y$ or $2y$ A1 for 0.5 oe |
| 6 | (a) (i) (ii) (b) (i) (ii) | 48 Alternate angles 30 Corresponding angles | 2 2 | B1 cao B1 for alternate angles oe B1 cao B1 for corresponding angles oe |
| 7 | (a) $100 \times 4560/12000$ $= 38\%$ (b) Ages 0 5 7 1 0 3 9 2 0 1 6 7 7 8 3 2 6 9 9 4 5 7 5 2 6 9 Key 5 2 = 52 (yrs) | 62% | 3 3 | M1 for $100 \times 4560/12000 (=38)$ or $12000 - 4560 (=7440)$ M1 for 100-“38” or $100 \times “7440”/12000$ A1 cao B1 for stem as 0, 1, 2, 3, 4, 5 or 0, 10, 20, 30, 40, 50 B1 for accurate unordered (or ordered) leaves condone 1 error or omission B1 for key and ordered leaves all correct |
| 8 | $100 \div 2.10 (=47.62)$ $70 \div 1.40 (=50)$ $50 - 47.62$ | 2.38 | 4 | M1 for $100 \div 2.10$ or 47.62 or 47.61(...) or 47.6(0) seen M1 for $70 \div 1.4$ or 50 seen M1 (dep on at least 1 previous M1) for “50”-“47.62” A1 for 2.38 or 2.39 |
| 9 | (i) Eg Given responses are wrong; ‘Yes’ and ‘No’ should be replaced by ‘mobile phone’ and ‘e-mail’ (ii) Eg Insufficient responses; need response box for ‘0’ and another response box for ‘more than 4’ | | 2 | B1 for valid reason B1 for valid reason |

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| 10 | | Shape vertices at (3,1); (3,7); (7,7); (5,1) | 3 | B3 cao (B2 for correct enlargement in wrong position) (B1 for any 2 correctly enlarged line segments) | |
| 11 | Area = $0.5 \times (2 + 6) \times 3$ $= 0.5 \times 8 \times 3 = 12$ | 12 m ² | 3 | M1 for $0.5 \times (2 + 6) \times 3$ oe A1 for 12 B1 for m ² | |
| 12 | (a) | 3.884682778 | 2 | B2 for 3.88468...; (B1 for 11.75 or 3.0247 or 3.88(...)) | |
| | (b) | 3.88 | 1 | B1ft (to 3 sf ft any answers to (a) that have ≥ 3 sf) | |
| 13 | 1 → 11 2 → 28 1.1 → 12.3(31) 1.2 → 13.7(28) 1.3 → 15.1(97) 1.4 → 16.7(44) 1.5 → 18.3(75) 1.6 → 20.0(96) 1.7 → 21.9(13) 1.8 → 23.8(32) 1.9 → 25.8(59) 1.65 → 20.9(92125) | 1.7 | 4 | B2 for trial between 1.6 and 1.7 inclusive (B1 for a trial between 1 and 2 inclusive) B1 for a different trial between 1.6 and 1.7 exclusive B1 cao (dep on at least one previous B1) for 1.7 NB: trials should be evaluated to at least 1dp truncated or rounded | |
| 14 | (a) | 1 share = $210 \div 3 (=70)$ Total = “70” $\times (3+4+4) =$ | 770 | 3 | M1 for association of 210 with 3 M1 for $(210 \div 3) \times (3+4+4)$ A1 cao |
| | (b) | Average speed = $210 \div (2\text{hrs } 40 \text{ mins})$ $= \frac{210}{2\frac{2}{3}} \text{ km/h} =$ | 78.75 | 3 | M1 uses speed = distance/time M1 (dep) for evidence of converting time to a single unit A1 for 77 to 81 SC: B2 for answer of 87.5 |
| | (c) (i) | | 7.5 | 2 | B1 cao for 7.5 |
| | (ii) | | 6.5 | | B1 cao for 6.5 |

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| 15 | $38 \times 5; 36 \times 17.5; 30 \times 32.5; 46 \times 50;$ $(=190; 630; 975; 2300)$ $\Sigma fx = 190 + 630 + 975 + 2300 = 4095$ Mean $\Sigma fx / \Sigma f = 4095 / 150$ | 27.3 | 4 | M1 for fx within intervals (including ends) at least two consistently M1 (dep) fx consistently using midpoints M1 (dep on 1 st M) for use of $\Sigma fx / \Sigma f$ A1 for 27.3 |
| 16 | (a) Radius is perpendicular to tangent (b) $\tan x = \frac{5.8}{12.5} \quad (=0.464)$ (c) $OP^2 = 12.5^2 + 5.8^2$ $OP = \sqrt{12.5^2 + 5.8^2} = \sqrt{189.89}$ $PC = OP - 5.8$ | (see working col.) 24.9 7.98 | 1 3 4 | B1 for radius (is perpendicular to) tangent oe M1 for $\tan(x =) \frac{5.8}{12.5}$ or $\sin(x =) \frac{5.8}{OP}$ or $\cos(x =) \frac{12.5}{OP}$ M1 for $\tan^{-1}\left(\frac{5.8}{12.5}\right)$ oe correct use of inverse A1 for 24.9 (or better) SC M1M1A0 either 0.434(4..) or 27.6(5..) seen M1 for $12.5^2 + 5.8^2$ M1 for $\sqrt{12.5^2 + 5.8^2}$ (OR M1 for $\cos"24.9" = \frac{12.5}{OP}$ or $\sin"24.9" = \frac{5.8}{OP}$ M1 for $OP = 12.5 \div \cos"24.9"$ or $OP = 5.8 \div \sin"24.9"$ A1 for 13.7 to 13.8 B1 ft (dep on $OP > 12.5$) for adding or subtracting 5.8 |

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| 17 | (a) eg $x = -2, y = -2; x = 0; y = 3;$ (b) | Any correct pairs of integers (1,1); (1,2); (2,1) | 2 3 | B2 for two correct pairs (B1 for one correct pair) B3 for three correct points (B2 for two correct points) (B1 for one correct point) NB If more than 3 pts marked, mark best three then deduct 1 mark for each additional point (min 0) SC: B2 for indicating the correct region |
| 18 | $\frac{CE}{8} = \frac{9}{6}$ or $\frac{CE}{9} = \frac{8}{6}$ $CE = \frac{8 \times 9}{6}$ $\frac{BC}{13.5} = \frac{6}{9}$ or $\frac{BC}{6} = \frac{13.5}{9}$ $BC = \frac{13.5 \times 6}{9}$ | (i) 12 (ii) 9 | 3 | M1 for scale factor either $\frac{9}{6} \left(\text{or } \frac{6}{9} \right)$ or $\frac{8}{6} \left(\text{or } \frac{6}{8} \right)$ or $\frac{13.5}{9} \left(\text{or } \frac{9}{13.5} \right)$ oe A1 cao for 12 A1 cao for 9 |
| 19 | Eg eqn (1) $\times 4$ then subtract eqn (2) $\times 3 \sim 13y = 65$ or eqn (2) $\times 7$ then subtract eqn (1) $\times 5 \sim 13x = -39$ Eg $4x + 5 \times "5" = 13$ | $x = -3$ $y = 5$ | 4 | M1 for correct full process to eliminate either x or y (condone one error) A1 cao either for $y = 5$ (or for $x = -3$) M1 (dep on 1 st M1) for correct substitution of their found value A1 cao (need both) |

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| 20 (a) | Increase = $708 - 620 (= 88)$ $\% \text{ increase} = \frac{\text{"88"}}{620} \times 100$ $\dots\dots\dots = 14.1935\dots\dots$ | 14 or 14.2 or 14.19 | 4 | M1 for $708 - 620 (=88)$ M1 for $\frac{\text{"88"}}{620} \times 100$ (OR M1 for $\frac{708}{620} \times 100$ M1 for "114.19(3...)" - 100) A2 for 14 or 14.2 or 14.19 (A1 for unrounded or truncated answer) (SC if A0 award B1 for an answer given or rounded to 2dp, 1dp, 2sf or nearest whole number) |
| (b) | $\frac{129.86}{100 - 14} \times 100 = \frac{12986}{86}$ | 151 | 3 | M1 for recognising that (100-14)% is equivalent to 129.86 M1 (dep) for $\frac{129.86}{100 - 14} \times 100$ oe |
| (c) | $\frac{19 + 20 + 15}{3}$ | 18 | 2 | A1 cao M1 for adding 3 consecutive numbers and dividing by 3 A1 cao |
| 21 | $x^2 + 4x + 4 = (x + 2)(x + 2)$ $x^2 + 4x + 4 = 0 \quad (x + 2)^2 = 0 \quad x = -2$ is the only value of x that satisfies the equation so Lisa is correct. | See working column | 2 | B2 for a complete solution (B1 for verifying that $x = -2$ is a root or for factorising oe) |