

Mark Scheme (Results) November 2007

IGCSE

IGCSE Mathematics (4400_2F)

4400 IGCSE Mathematics
November 2007
Paper 2F

| Q | | Working | Answer | Mark | Notes |
|----|--------|--|------------------|------|---|
| 1. | (a) | <u>four</u> thousand, <u>eight</u> hundred and seventy eight | | 1 | B1 Accept digits for 4, first 8 Condone omission of "and" |
| | (b) | | hundreds | 1 | B1 Accept 700, 100 |
| | (c) | | 5000 | 1 | B1 cao |
| | (d) | | 520 | 1 | B1 cao |
| | (e)(i) | | $\frac{11}{100}$ | 2 | B1 cao |
| | (ii) | | 0.11 | | B1 cao |
| | | | | | Total 6 marks |

| | | | | | | |
|----|--------|--|---------------|---|----|---------------------------------|
| 2. | (a) | | LOT Poland | 1 | B1 | Accept any clear identification |
| | (b)(i) | | 5 | 3 | B1 | cao |
| | (ii) | | 10 | | B1 | ft from (i) |
| | (iii) | | 26-29 inc | | B1 | ft from (i) |
| | (c) | $32 \div 8$ or 4 or 3×32 or 96 or 0.375 | | 2 | M1 | |
| | | | 12 | | A1 | cao |
| | (d) | $\frac{14}{35}$ | | 2 | M1 | |
| | | | $\frac{2}{5}$ | | A1 | cao |
| | (e) | $72 \div 6$ or 12 seen | | 2 | M1 | |
| | | | 84 | | A1 | cao |
| | | | | | | Total 10 marks |

| | | | | | | |
|----|-------|--|----------------|---|----|---------------|
| 3. | (i) | | millimetre, mm | 3 | B1 | |
| | (ii) | | grams, g | | B1 | |
| | (iii) | | metres, m | | B1 | |
| | | | | | | Total 3 marks |

| | | | | | | |
|----|--------|--|-----------------------------------|---|----|---------------------------------|
| 4. | (a) | | 8.2 | 1 | B1 | cao |
| | (b)(i) | | Arrow | 3 | B1 | within $\frac{1}{2}$ a division |
| | (ii) | | hundredth, $\frac{1}{100}$, 0.01 | | B1 | Accept $\frac{8}{100}$, 0.08 |
| | (iii) | | 2 | | B1 | cao |
| | (c) | | 2.485 | 1 | B1 | cao |
| | | | | | | Total 5 marks |

| | | | | | | |
|----|--------|--|----------|---|----|---------------------------------|
| 5. | (a)(i) | | cube | 3 | B1 | Accept "cuboid" |
| | (ii) | | prism | | B1 | Condone omission of "hexagonal" |
| | (iii) | | cylinder | | B1 | |
| | (b)(i) | | 6 | 2 | B1 | cao |
| | (ii) | | 18 | | B1 | cao |
| | | | | | | Total 5 marks |

| | | | | | | |
|----|-----|--|---|---|----|---------------|
| 6. | (a) | | 32 | 1 | B1 | cao |
| | (b) | | eg Double, Multiply by 2, Add on twice as many, Add term to itself | 1 | B1 | |
| | (c) | | 4096 | 1 | B1 | cao |
| | (d) | | eg 513 is odd, All terms are even | 1 | B1 | |
| | | | | | | Total 4 marks |


| | | | | | | |
|----|-----|--|-----------|---|----|--------------------------------|
| 7. | (a) | | $2d$ | 1 | B1 | Accept $2 \times d$, $d2$ etc |
| | (b) | | $6pq$ | 1 | B1 | cao No \times signs |
| | (c) | | $3x - 2y$ | 2 | B2 | B1 for $3x$, B1 for $-2y$ |
| | (d) | | $6n^2$ | 1 | B1 | cao |
| | | | | | | Total 5 marks |

| | | | | | | |
|----|-----|--|---|---|----|--|
| 8. | (a) | | 25 52 205 250 502 | 1 | B1 | cao |
| | (b) | | -12 -10 -9 -7 0 | 1 | B1 | cao |
| | (c) | | 0.078 0.08 0.7 0.708 0.78 | 1 | B1 | cao |
| | (d) | $\frac{2}{5} = 0.4$ $30\% = 0.3$ $\frac{1}{3} = 0.\dot{3}$ | | 2 | M1 | for one correct conversion to a decimal |
| | | | 30% $\frac{1}{3}$ 0.35 $\frac{2}{5}$ | | A1 | cao SC if M0, award B1 for 3 in correct order |
| | | | | | | Total 5 marks |

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|----|-----|--------------------------------|-----|---|----|---|
| 9. | (a) | eg $2 \times 28 + 2 \times 15$ | | 2 | M1 | for $2 \times 28 + 2 \times 15$, $28 + 28 + 15 + 15$ etc |
| | | | 86 | | A1 | cao |
| | (b) | 28×15 | | 2 | M1 | |
| | | | 420 | | A1 | cao |
| | | | | | | Total 4 marks |

| | | | | | | |
|-----|-----|---|---------------|---|----|---|
| 10. | (a) | | 0 | 1 | B1 | Accept $\frac{0}{3}, \frac{0}{100}$ |
| | (b) | (1,1) (1,2) (1,3) (2,1) (2,2) (2,3) (3,1) (3,2) (3,3) | | 2 | B2 | B1 for 5 or more Condone omission of (1,2) |
| | (c) | | $\frac{4}{9}$ | 2 | M1 | for denominator ft from (b) if at least B1 scored |
| | | | | | A1 | for numerator ft from (b) if M1 scored |
| | | | | | | Total 5 marks |

| | | | | | | |
|-----|-----|-----------------------------|-----|---|----|--|
| 11. | (a) | 300×2.61 | | 2 | M1 | |
| | | | 783 | | A1 | cao |
| | (b) | $812 \div 1.45$ | | 2 | M1 | |
| | | | 560 | | A1 | cao |
| | (c) | $630 \times 1.45 \div 2.61$ | | 2 | M1 | for $\frac{630}{2.61}$ or 241.38 or better or 241.37 or 630×1.45 or 913.5 or 0.55... seen or 1.8 seen |
| | | | 350 | | A1 | Accept 349.99 or 350 |
| | | | | | | Total 6 marks |

| | | | | | | |
|-----|-----|---|------------------|---|----|--|
| 12. | (a) | $4x = 2 + 1$ | | 2 | M1 | |
| | | | $\frac{3}{4}$ oe | | A1 | |
| | (b) |  | | 2 | B2 | B1 for either open circle at -2 or solid circle at 3 |
| | | | | | | Total 4 marks |

| | | | | | | | |
|-----|-----|-------------------------------|-----|---|----|-----------------------------|------------------------------------|
| 13. | (a) | opposite angle is 64° | | 3 | M1 | Stated or marked on diagram | Alternatively M2 for $180 - 64$ |
| | | $\frac{360 - 2 \times 64}{2}$ | | | M1 | | |
| | | | 116 | | A1 | cao | |
| | (b) | | 64 | 1 | B1 | cao | |
| | (c) | | 4 | 1 | B1 | cao | |
| | (d) | | 20 | 1 | B1 | ft from (c) | |
| | | | | | | | Total 6 marks |

| | | | | | | | |
|-----|-----|---|------|---|----|---|---------------|
| 14. | (a) | $\frac{35}{150} \times 360$ | | 2 | M1 | for $\frac{35}{150}$ or 0.233... or 23.3.... or $\frac{360}{150}$ or 2.4 | |
| | | | 84 | | A1 | for 82.8 - 84 inc | |
| | (b) | $\frac{55}{150} \times 60$ | | 3 | B1 | for $\frac{55}{150}$ oe or $\frac{60}{150}$ oe seen | |
| | | | 22 | | M1 | for $\frac{55}{150} \times 60$ | |
| | | | | | A1 | cao | |
| | (c) | $68 \times 48 + 58 \times 35$ $= 3264 + 2030$ | | 3 | M1 | 2 products $m \times f$ where m is within each interval and consistent (inc end points) | |
| | | | | | M1 | (dep) for use of halfway values | |
| | | | 5294 | | A1 | Accept 5300 or 5290 if M1 + M1 scored | |
| | (d) | eg no upper limit for extra large, no lower limit for small, don't know midpoints for XL, S | | 1 | B1 | | |
| | | | | | | | Total 9 marks |

| | | | | | | | | |
|-----|--------|--|--|---|----|--------------|---|--|
| 15. | (a)(i) | | 57 | 2 | B1 | cao | | |
| | (ii) | | alternate angles | | B1 | | Do not accept <i>Z angles</i> or <i>F angles</i> | |
| | (b) | | corresponding angles and sum of angles on a straight line is 180° or allied or co-interior angles and (vertically) opposite angles or alternate angles and sum of angles on a straight line is 180° | 2 | B1 | for one pair | | |
| | | | 71 | | B1 | cao | | |
| | | | | | | | Total 4 marks | |

| | | | | | | | | |
|-----|--|-------------------|------|---|----|-------------------------------------|---------------|--|
| 16. | | $\frac{1.6}{2.5}$ | | 2 | M1 | for 1.6 or 2.5 seen or for 2.430... | | |
| | | | 0.64 | | A1 | Accept $\frac{16}{25}$ | | |
| | | | | | | | Total 2 marks | |

| | | | | | | | | |
|-----|-----|--|------------|---|----|---|---------------|--|
| 17. | (a) | | $5(x - 4)$ | 1 | B1 | cao | | |
| | (b) | | $y(y + 6)$ | 2 | B2 | B1 for factors, which, when expanded and simplified, give two terms, one of which is correct except $(y + 6)(y - 6)$ and similar SC B1 for $y(y + 6y)$ | | |
| | | | | | | | Total 3 marks | |

| | | | | | | | | |
|-----|--|--|-----------------------|---|----|---|---------------|--|
| 18. | | | Reflection in $x = 4$ | 2 | B1 | for reflection, reflect | | |
| | | | | | B1 | for $x = 4$ stated or eg 'in dotted line' | | |
| | | | | | | | Total 2 marks | |

| | | | | | | |
|-----|--|-----------------------------|-----|---|----|-------------------------------|
| 19. | | $420 \times \frac{100}{56}$ | | 3 | M1 | for $420 \div 56$ or 7.5 seen |
| | | | | | M1 | (dep) for $\times 100$ |
| | | | 750 | | A1 | cao |
| | | | | | | Total 3 marks |

| | | | | | | |
|-----|--|---|--|---|----|---------------------------------|
| 20. | | arc centre B cutting AB and AC at (say) P and Q | | 2 | B1 | |
| | | arcs centre P and Q of equal radii which intersect at R (say) and BR joined | | | B1 | (dep) bisector within tolerance |
| | | | | | | Total 2 marks |

| | | | | | | |
|-----|-----|--|-------|---|----|---|
| 21. | (a) | $7 \quad 2 \quad (-1) \quad -2 \quad -1 \quad 2 \quad 7$ | | 2 | B2 | B1 for 4 correct |
| | (b) | | graph | 2 | B2 | B1 for 5 points plotted correctly $\pm \frac{1}{2}$ sq ft from (a) if at least B1 scored B1 for correct curve or, if there are 1 or 2 errors in (a) and no plotting errors, award for a curve passing through the 7 points from their table. |
| | | | | | | Total 4 marks |

| | | | | | | |
|-----|--|---|------|---|----|-------------------------|
| 22. | | $4.9^2 + 16.8^2$ or $24.01 + 282.24$ or 306.25 | | 3 | M1 | for squaring and adding |
| | | $\sqrt{4.9^2 + 16.8^2}$ | | | M1 | (dep) for square root |
| | | | 17.5 | | A1 | |
| | | | | | | Total 3 marks |