



**Published**

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### Abbreviations

|      |                            |
|------|----------------------------|
| awrt | answers which round to     |
| cao  | correct answer only        |
| dep  | dependent                  |
| FT   | follow through after error |
| isw  | ignore subsequent working  |
| oe   | or equivalent              |
| SC   | Special Case               |
| nfww | not from wrong working     |
| soi  | seen or implied            |

| Question         | Answer                                       | Marks    | Part Marks   |          |
|------------------|--|----------|--|----------|
| <b>1 (a)</b>     | trapezium                                    | <b>1</b> |  |          |
|                  | triangle                                     | <b>1</b> |  |          |
|                  | square                                       | <b>1</b> |  |          |
|                  | parallelogram                                | <b>1</b> |  |          |
| <b>(b) (i)</b>   | 2  | <b>1</b> | <b>B1</b> for 1 correct line and no incorrect<br>or for 2 correct lines but $\geq 1$ incorrect   |          |
|                  | 2 correct lines                              | <b>2</b> |  |          |
| <b>2 (a) (i)</b> | 38   | <b>1</b> | <b>B1</b> for 35 and 32 soi  |          |
|                  | <b>(ii)</b> 6                                | <b>1</b> |  |          |
|                  | <b>(iii)</b> 67                              | <b>2</b> |  |          |
|                  | <b>(b)</b> 4400                              | <b>2</b> |  |          |
|                  | <b>(c)</b> 5                                 | <b>3</b> |  |          |
| <b>3 (a) (i)</b> | 130  | <b>1</b> |  |          |
|                  | <b>(ii)</b> Obtuse                           | <b>1</b> |  |          |
|                  | <b>(b)</b>                                   | 147      |  | <b>1</b> |
|                  |  | 57       |  | <b>1</b> |
| 33               |  | <b>1</b> |  |          |
| <b>4 (a)</b>     | Correct pattern                              | <b>1</b> | <b>M2</b> for substituting one value bigger than<br>or equal to 2 into both formulae<br>or <b>M1</b> for any substituting into either<br>formula |          |
|                  | <b>(b)</b> 13, 16                            | <b>1</b> |  |          |
|                  | <b>(c)</b> +3 oe                             | <b>1</b> |  |          |
|                  | <b>(d)</b> Sarah, with correct justification | <b>3</b> |  |          |

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|    |         |                          |        |   |
|----|---------|--------------------------|--------|---|
| 5  | (a)     | 62.5 oe                  | 2      | M1 for $6\frac{1}{4} \times 10$ oe  |
|    | (b)     | 12 min 30 sec            | 4      | B3 for 12.5 minutes seen<br>or M2 for $6.25 \div 30 \times 60$ oe<br>or M1 for $6.25 \div 30$ oe  |
| 6  | (a)     | 57                       | 2      | B1 for 12 or 45 seen<br>or M1 for $6 \times 2 + 9 \times 5$ seen  |
|    | (b)     | $5x + 13$                | 2      | B1 for $5x$ or $[\+]13$ seen  |
|    | (c)     | $3(2x + 3y)$             | 1      |   |
| 7  | (a)     | 24                       | 2      | M1 for $6 \times 8 \div 2$ soi  |
|    | (b)     | 336                      | 3FT    | FT 288 + 2×their (a)<br>M2 for $12 \times 8$ , $12 \times 10$ and $12 \times 6$ soi<br>or M1 for any two of $12 \times 8$ , $12 \times 10$ ,<br>$12 \times 6$ soi |
|    | (c)     | 288                      | 1FT    | FT 12×their (a)   |
| 8  | (a)     | 16.11                    | 3      | M2 for $8.95 \div 5 \times 9$<br>or M1 for $8.95 \div 5$  |
|    | (b)     | 1.38                     | 3      | M2 for $1.20 \times 1.15$ oe<br>or M1 for $1.20 \times 0.15$ oe   |
|    | (c)     | 12                       | 3      | M2 for $(5.50 - 4.84) \div 5.50$ oe<br>or M1 for $4.84 \div 5.50$ oe  |
| 9  | (a)     | 10                       | 1      |   |
|    | (b)     | 2                        | 3      | M1 for $6x - 3 = 9$ or for $2x - 1 = 3$<br>M1 for $6x = 12$ or for $2x = 4$   |
|    | (c)     | $4\frac{1}{2}$ oe        | 3      | M2 for $7x - 3x$ seen and $20 - 2$ seen<br>or M1 for $7x - 3x$ seen or $20 - 2$ seen  |
| 10 | (a)     | [0.75, 1.5] 3, 6, 12, 24 | 1      |   |
|    | (b)     | Correct curve            | 1<br>1 | B1 for correct shape<br>B1 for crosses y-axis at approximately 3  |
|    | (c) (i) | Correct line             | 1      | Above where curve crosses y-axis  |
|    | (ii)    | 1.415 to 1.42            | 1      |   |

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|    |                       |   |   |  |
|----|-----------------------|---|---|--|
| 11 | (a)                   | Steve<br>Median = 27<br>IQR = 13  | 1<br>2  | B1 for 30 or 17 seen   |
|    | (b)                   | Tam<br>Median = 23<br>IQR = 11 or 11.5  | 1<br>2  |  |
|    | (c)                   | Steve's plants are taller oe<br>Tam's plants have a more consistent height oe | 1<br>1  |  |
| 12 | (a)                   | [0.455] 0.21, 0.335   | 2   | M1 for $n \div 200$ soi  |
|    | (b)                   | Large amount of trials oe   | 1   |  |
|    | (c)                   | 1675  | 2   | M1 for <i>their</i> $\frac{67}{200} \times 5000$                     |
|    | (d)                   | 0.665   | 2   | M1 for $0.455 + \text{their}(0.21)$                                  |
| 13 | (a)                   | $1.17 \times 10^{13}$   | 2   | B1 for $9 \times 10^{16}$ seen                                       |
|    | (b)                   | [0].00013   | 1   |  |
|    | (c)                   | $\sqrt{\frac{E}{m}}$ oe   | 2   | M1 for $c^2 = \frac{E}{m}$<br>or SC1 for answer $\frac{\sqrt{E}}{m}$ |
| 14 | 826 or 825.6 to 825.7 | 6   | M1 for $3 \times 100$<br>M1 for $4 \times 80$<br>M1 for $2 \times 40$<br>M2 for $\frac{1}{2} \times \pi \times 80$<br>or M1 for $\pi \times 80$ |  |
| 15 | (a)                   | 8.13 or 8.127...  | 2   | M1 for $4.6^2 + 6.7^2$ seen  |
|    | (b)                   | 27.6 or 27.64...  | 3   | M2 for $10.8 \div \sin 23$<br>or M1 for $\sin 23 = \frac{10.8}{y}$   |