| 1 |  |  | 6 squares shaded | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 1 mark** |

| 2 | c |  |  | 2 | B2 | (B1 for 7*d* or −3*e* or 7*d* + −3*e* ) |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 2 marks** |

| 3 | b |  |  | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 1 mark** |

| 4 | a |  |  | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 1 mark** |

| 5 | b |  |  | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 1 mark** |

| 6 | (a) |  | Wednesday | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) | 4 : 2.5 or 16 : 10 oe |  | 2 | M1 |  |
|  |  |  | 8 : 5 | A1 | M1 A0 for 5 : 8 |
|  | (c) |  | 3.5 “envelopes” | 1 | B1 | Accept  for half an envelope |
|  | (d) |  |  | 2 | M1 |  |
|  |  |  |  | A1 |  |
|  | (e) | eg Heights of bars (cms): 7, 5.5, 3 or  heights of 3.5, 2.75, 1.5 cms | bars at correct heights and correct scale | 2 | B2 | B2 for all bars at correct heights with a correct scale (at least one value, not contradicted. 0 implied)  If not B2 then B1 for 1 error on heights  **or** no scale, but with heights in correct proportion eg 7, 5.5, 3 cms |
|  |  |  |  |  |  | **Total 8 marks** |

| 7 |  | **or** for  or  seen |  | 4 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 1200 – “320” (= 880) **and** “880” ÷ 11 (=80)  **or**  oe  **or**  oe |  | M1 |  |
|  |  | 1200 – (“320” + “240”) **or** 880 – 240 (= 640)  **or**  **or**  oe |  | M1 |  |
|  |  |  | 320, 240, 640 | A1 | Must be on correct answer lines or clearly attributed to cake *A*, *B* and *C*, otherwise withhold final A mark. |
|  |  |  |  |  |  | **Total 4 marks** |

| 8 | ai |  | likely | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | aii |  | impossible | 1 | B1 |  |
|  | b |  | cross at | 1 | B1 |  |
|  | c |  | cross at | 1 | B1 |  |
|  |  |  |  |  |  | **Total 4 marks** |

| 9 | a |  | (−2, 3) | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | b |  | (×) at (4, −2) | 1 | B1 | condone missing label as long as unambiguous |
|  | c |  | *y* = −3 | 1 | B1 | oe |
|  |  |  |  |  |  | **Total 3 marks** |

| 10 | a |  | Fully correct Venn diagram | 3 | B3  (B2  B1 | fully correct Venn diagram  for 2 or 3 sections correct  for 1 section correct) |
| --- | --- | --- | --- | --- | --- | --- |
|  | b |  |  |  | M1 | ft from (a)  where *a* ≥ 4 **or**  where *b* ≤ 12 |
|  |  |  |  | 2 | A1 | oe |
|  |  |  |  |  |  | **Total 5 marks** |

| **11** |  | 2*x* – 3 = 20 ÷ 5 or 10*x* – 15 = 20 |  | 3 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 2*x* = “4” + 3 oe or 10*x* = 20 + “15”  10*x* = 35 oe |  | M1 | For collecting terms, ft their expansion |
|  |  |  | 3.5 oe | A1 | dep M1  accept or |
|  |  |  |  |  |  | **Total 3 marks** |

| 12 | (a) | 4 – – 6 or – 6 – 4 or – 10 |  | 2 | M1 | Identifying 4 and – 6 only.  or for stating 10 or – 10 |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 10 | A1 |  |
|  | (b) | – 6, – 5, – 1, 3, 4  **or** 4, 3, – 1, – 5, – 6 |  | 2 | M1 | Putting temperatures in ascending or descending order. |
|  |  |  | – 1 | A1 |  |
|  | (c) | oe |  | 2 | M1 | accept  or 0.6 oe |
|  |  |  | 60 |  | A1 |  |
|  | (d) | – 6 + 8 |  | 2 | M1 |  |
|  |  |  | 2 | A1 | Accept +2 |
|  |  |  |  |  |  | **Total 8 marks** |

| 13 | a |  | Trapezium | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | b |  | 42 | 1 | B1 | Accept 40 – 44 |
|  | c |  | Correct lines marked | 1 | B1 |  |
|  | d |  | 2 | 1 | B1 |  |
|  |  |  |  |  |  | **Total 4 marks** |

| 14 | (a) |  | 12 348 | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | 84 312 | 1 | B1 |  |
|  | (c) |  | 1,3 | 2 | B2 | for both correct values  -1 eeoo |
|  | (d) |  | 2,3 | 2 | B2 | for both correct values  -1 eeoo |
|  |  |  |  |  |  | **Total 6 marks** |

| 15 | (a) (i) |  | Sphere | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (a) (ii) |  | Cone | 1 | B1 |  |
|  | (a) (iii) |  | Prism | 1 | B1 | Accept hexagon prism or hexagonal prism |
|  | (b) (i) |  | 8 | 1 | B1 |  |
|  | (ii) |  | 12 | 1 | B1 |  |
|  |  |  |  |  |  | **Total 5 marks** |

| 16 | a |  | 15*a* + 20 | 1 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | b |  | 2(2*c* − 7) | 1 | B1 |  |
|  | c | E.g.5*x* – *x* = 6 + 11 **or**4*x* – 11 = 6 **or**5*x* = *x* + 17 |  |  | M1 | for correct rearrangement with *x* terms on one side and numbers on the other  **or**  the correct simplification of either *x* terms or numbers on one side in a correct equation |
|  |  | 4*x* = 17 **or** −4*x* = −17 |  |  | M1 |  |
|  |  |  | 4.25 | 3 | A1 | oe, dep on at least M1 |
|  |  |  |  |  |  | **Total 5 marks** |

| 17 | (a) (i) |  | kilometres | 1 | B1 | Accept km or kms |
| --- | --- | --- | --- | --- | --- | --- |
|  | (ii) |  | litres | 1 | B1 |  |
|  | (iii) |  | square cm | 1 | B1 | Accept sq cm, square centimetres, cm2 etc. |
|  | (b) |  | 1.8 → 2.2  metres | 2 | B2 | B2 for 1800 → 2200 mm  or 180 → 220 cm  or 1.8 → 2.2 m  If not B2, then B1 for  metres, centimetres or millimetres |
|  |  |  |
|  |  |  |  |  |  | **Total 5 marks** |

| 18 |  | (−2, 7) (−1, 5) (0, 3)(1, 1) (2, −1) (3, −3) | Correct line between *x* = −2 and *x* = 3 | 3 | B3 | for a correct line between *x* = −2 and *x* = 3  (B2 for a correct straight line segment through at least 3 of (−2, 7) (−1, 5) (0, 3) (1, 1) (2, −1) (3, −3)  **or**  for all of (−2, 7) (−1, 5) (0, 3) (1, 1) (2, −1) (3, −3) plotted but not joined)  (B1 for at least 2 correct points stated (may be in a table) **or** plotted **or** for a line drawn with a negative gradient through (0, 3) **or** for a line with a gradient of −2) |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Total 3 marks** |

| **19** | (a) |  | 81*k*8 | 2 | B2 | B1 for 81 or *k*8 seen in their final answer. |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | 7*m*4*n*6 | 2 | B2 | B1 for 7*m*4 or *n*6 in a product with no other terms in *m* or *n* |
|  |  |  |  |  |  | **Total 4 marks** |

| 20 |  | e.g.  **and**  or **and** |  | 3 | M1 | for two correct improper fractions |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | e.g.  **or**  **or** oe |  |  | M1 | correct cancelling or multiplication of numerators and denominators without cancelling |
|  |  | e.g. **or**  **or**  **or**  NB: a student can show initially that and they need to show that LHS = | shown |  | A1 | Dep on M2 for conclusion to  from correct working – either sight of the result of the multiplication e.g.  must be seen and equated to or  **or**  correct cancelling prior to the multiplication to  NB: use of decimals scores no marks |
|  |  |  |  |  |  | **Total 3 marks** |

| 21 | (c) | 54 ÷ (9 × 2) |  | 2 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 3 | A1 |  |
|  |  |  |  |  |  | **Total 2 marks** |

| 22 | a | e.g. *A* + 5*z* = oe **or**  *Ay* = *c* – 5*yz* oe |  | 2 | M1 | for a correct first step e.g.  add 5*z* to both sides  **or**  multiply all terms by *y* |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | *c* = *y*(*A* + 5*z*) |  | A1 | oe |
|  |  |  |  |  |  | **Total 2 marks** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Edexcel averages: scores of candidates who achieved grade:** | | | | | | |
| **Qn** | **Mean score** | **Max score** | **Mean %** | **ALL** | **5** | **4** | **3** | **2** | **1** | **U** |
| **1** | 0.90 | **1** | 90 | 0.90 | 0.99 | 0.92 | 0.94 | 0.64 | 0.17 | 0.50 |
| **3** | 0.86 | **1** | 86 | 0.86 | 0.98 | 0.87 | 0.75 | 0.59 | 0.42 | 0.50 |
| **2** | 1.65 | **2** | 83 | 1.65 | 1.92 | 1.74 | 1.28 | 0.95 | 0.58 | 1.50 |
| **4** | 0.79 | **1** | 79 | 0.79 | 0.81 | 0.85 | 0.81 | 0.55 | 0.83 | 0.50 |
| **5** | 0.88 | **1** | 88 | 0.88 | 0.97 | 0.79 | 0.84 | 0.82 | 0.50 | 0.50 |
| **6** | 6.64 | **8** | 83 | 6.64 | 7.17 | 6.72 | 6.06 | 5.79 | 3.93 | 3.00 |
| **7** | 2.95 | **4** | 74 | 2.95 | 3.84 | 3.13 | 2.03 | 0.26 | 0.08 | 0.00 |
| **8** | 3.18 | **4** | 80 | 3.18 | 3.60 | 3.09 | 2.70 | 2.45 | 1.83 | 2.00 |
| **9** | 2.39 | **3** | 80 | 2.39 | 2.70 | 2.12 | 2.01 | 1.91 | 1.75 | 1.00 |
| **10** | 3.67 | **5** | 73 | 3.67 | 4.40 | 3.52 | 3.25 | 1.54 | 1.34 | 1.50 |
| **11** | 2.30 | **3** | 77 | 2.30 | 2.77 | 2.11 | 2.23 | 1.22 | 0.08 | 0.00 |
| **12** | 5.81 | **8** | 73 | 5.81 | 6.97 | 5.53 | 4.48 | 3.70 | 1.50 | 0.00 |
| **13** | 2.83 | **4** | 71 | 2.83 | 3.23 | 2.66 | 2.59 | 1.96 | 1.33 | 1.00 |
| **14** | 4.24 | **6** | 71 | 4.24 | 4.76 | 3.85 | 3.65 | 3.30 | 3.00 | 1.00 |
| **15** | 3.16 | **5** | 63 | 3.16 | 3.59 | 3.00 | 2.72 | 2.34 | 1.91 | 0.00 |
| **16** | 3.53 | **5** | 71 | 3.53 | 4.58 | 2.97 | 2.50 | 1.59 | 0.25 | 0.50 |
| **17** | 3.25 | **5** | 65 | 3.25 | 3.71 | 2.94 | 2.71 | 2.57 | 1.84 | 1.00 |
| **18** | 1.88 | **3** | 63 | 1.88 | 2.60 | 1.51 | 0.94 | 0.59 | 0.00 | 0.00 |
| **19** | 2.03 | **4** | 51 | 2.03 | 2.74 | 1.63 | 1.13 | 0.74 | 0.25 | 1.00 |
| **20** | 1.46 | **3** | 49 | 1.46 | 2.02 | 1.18 | 0.50 | 0.59 | 0.25 | 0.50 |
| **21** | 1.09 | 2 | 55 | 1.09 | 1.56 | 0.76 | 0.58 | 0.17 | 0.00 | 0.00 |
| **22** | 0.52 | 2 | 26 | 0.52 | 0.85 | 0.18 | 0.16 | 0.00 | 0.00 | 0.00 |
|  | **56.01** | **80** | **70** | **56.01** | **66.76** | **52.07** | **44.86** | **34.27** | **21.84** | **16.00** |

**Suggested grade boundaries**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Grade** | **5** | **4** | **3** | **2** | **1** |
| Mark | 59 | 48 | 39 | 28 | 19 |