| 1 | (b) |  | 18 | 1 | B1 | cao |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |

| 2 | (d) | or0.75, 0.4, 0.466…, 0.666… or75%, 40%, 46.6%, 66.6% |  | 2 | M1 | for a method to compare the fractionsIf M0, award B1 for any three of these fractions in the correct order or for all fractions (or dec or perc) in correct reverse order |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | A1 | allow answers in any form (dec or perc) |
|  |  |  |  |  |  |  |

| 3 | (e) |  oe |  | 2 | M1 | for fraction or for partial simplification. |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | A1 | caocorrect answer scores full marks |
|  |  |  |  |  |  | **Total 2 marks** |

| 4 |  | 2, 2, 5 and 5, 7 or seen on a ladder or at the end of branches **OR** for at least 3 multiples of both 20 and 35e.g. 20, 40, 60, ... and 35, 70, 105, ... |  | 2 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 140 |  | A1 | allow 2 × 2 × 5 × 7 oe |
|  |  |  |  |  |  | **Total 2 marks** |

| 5 |  | 30 ÷ 3.05 (= 9.8...) |  | 3 | M1 | oe, e.g. adding 9 lots of 3.05 |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 30 – 9 × 3.05 oe |  |  | M1 |  |
|  |  |  | 2.55 |  | A1 | oe |
|  |  |  |  |  |  | **Total 3 marks** |

| 6 |  | 4 × 4 × 4 (= 64) **or** 60 × 48 × 40 (= 115 200) **OR** 60 ÷ 4 (= 15), 48 ÷ 4 (= 12), 40 ÷ 4 (+ 10) oe |  | 3 | M1 | for finding the volume of either the cube **or** carton **OR** finding the number of cartons that fit along each edge of the box |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | “115 200” ÷ “64” **or** “15” × “12” × “10” |  |  | M1 | for a complete method |
|  |  |  | 1800 |  | A1 |  |
|  |  |  |  |  |  | **Total 3 marks** |

| 7 |  |  |  | 2 | M1 | for correct application of formulaallow triangle method |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 32 |  | A1 | cao |
|  |  |  |  |  |  | **Total 2 marks** |

| 8 |  | 5 × 25 (= 125) |  | 4 | M1 | total number of balloons |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | ‘125’ ÷ 32 (= 3.9….) |  |  | M1 |  |
|  |  | ‘125’ – (32 × 3) or 125 – 96 **or**  |  |  | M1 |  |
|  |  |  | 29 |  | A1 |  |
|  |  |  |  |  |  | **Total 4 marks** |

| 9 |  | 72 ÷ 3 (= 24) or  |  | 4 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | ‘24’ × 68 (= 1632) or oe |  |  | M1 |  |
|  |  | ‘1632’ ÷ 60 (= 27.2) **or** 30 × 60 (= 1800) or‘1632’ ÷ 3600 (=  =  ) |  |  | M1 |  |
|  |  |  | Yes with correct figures |  | A1 | Yes and 27.2 **or** (1632 and 1800) seenor Yes and 0.453 oe seen |
|  |  |  |  |  |  | **Total 4 marks** |

| 10 | (a) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **bus** | **train** | **plane** | **total** |
| **men** | ***12*** | 15 | ***53*** | 80 |
| **women** | 17 | ***28*** | ***25*** | ***70*** |
| **total** | 29 | 43 | ***78*** | 150 |

 |  | 3 | B3(B2(B1 | for all 6 entries correctfor 4 or 5 correct entries)for 2 or 3 correct entries) |
|  | (b) |  |   | 1 | B1 | oe e.g. , 0.1875, 18.75%  |
|  |  |  |  |  |  | **Total 4 marks** |

| 11 | (a) | 20 + 45 or 20 + 9 × 5 |  | 2 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 65 |  | A1 |  |
|  | (b) | 164 – 20 (= 144) |  | 3 | M1 |  |
|  |  | ‘144’ ÷ 9 (= 16) |  |  | M1 |  |
|  |  |  | 16 |  | A1 | cao |
|  | (c) |  |  | 2 | M1 | for *T* = *an* + 20 or *T* = 9*n* + *k* or9*n* + 20 |
|  |  |  | *T* = 9*n* + 20 |  | A1 | for *T* = 20 + 9*n* or *T* = 9*n* + 20  |
|  |  |  |  |  |  | **Total 7 marks** |

| 12 | (a) |  | 243 | 1 | B1 | cao |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | Multiplying previous term by 3 | 1 | B1 | for multiplying previous term by 3 oe or   |
|  | (c) |  | 19 683 | 1 | B1 | cao |
|  |  |  |  |  |  | **Total 3 marks** |

| 13 | (a) |  | 2 460 000 | 1 | B1 | accept 2,460,000 or 246 0000 |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | 7.4 × 10−4 | 1 | B1 |  |
|  | (c) |  |  | 2 | M1 | for correct value not in standard form e.g. 58.3 × 105 or 583 × 104 or 0.583 × 107 oe |
|  |  |  | 5 830 000 |  | A1 | 5 830 000 or 5.83 × 106do not isw. |
|  |  |  |  |  |  | **Total 4 marks** |

| 14 | (a) |

|  |  |  |
| --- | --- | --- |
|  |  | **Spinner B** |
|  |  | **1** | **2** | **3** | **4** |
|  | **1** | (2) | (3) | 4 | 5 |
| **Spinner A** | **2** | (3) | 4 | 5 | 6 |
|  | **3** | 4 | 5 | 6 | 7 |

 | Correct values | 2 | B2(B1 | for all 9 correct values5 or 6 or 7 or 8 correct values) |
|  | (b) |  |  | 2 | M1 | for where *m* > 6 or where *n* < 12 |
|  |  |  |  |  | A1ft | oe ft their table.isw incorrect cancelling. |
|  | (c) |  |  | 2 | M1 | allow “a fraction” × 84fraction cannot be zero or improper |
|  |  |  | 21 |  | A1 | cao |
|  |  |  |  |  |  | **Total 6 marks** |

| 15 | (a) | e.g. (8.3 – 3.2) ÷ 3 |  | 2 | M1 | for a complete method |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1.7 |  | A1 |  |
|  | (b) | 9.45 ÷ 7 |  | 2 | M1 |  |
|  |  |  | 1.35 |  | A1 |  |
|  |  |  |  |  |  | **Total 4 marks** |

| 16 |  |  (= 225*π*) |  | 2 | M1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 707 |  | A1 | awrt 707 |
|  |  |  |  |  |  | **Total 2 marks** |

| 17 |  |  |  | 3 | M1 | for one of - 5 numbers with a median of 8- 5 numbers with a mode of 5- 5 numbers with a range of 10- 5 numbers with a sum of 45 |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | M1 | for two of - 5 numbers with a median of 8- 5 numbers with a mode of 5- 5 numbers with a range of 10- 5 numbers with a sum of 45 |
|  |  |  | 5, 5, 8, 12, 15 |  | A1 | Note: The numbers can be in any order |
|  |  |  |  |  |  | **Total 3 marks** |

| 18 |  | for 0.08 × 1200 oe (= 96) **or** 1.08 × 1200 oe (= 1296) | **OR** 1200 × 1.083 |  | 3 | M1 | for 0.08 × 1200 oe (= 96) **or** 1.08 × 1200 oe (= 1296) | **OR** M2 for 1200 × 1.083 **or** 1200 × 1.084 (= 1632.59)(M1 for 1200 × 1.082 (= 1399.68)) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1.08 × “1296” (= 1399.68) oe1.08 × “1399.68” (= 1511.6544) oe |  |  | M1 | for completing method to find total amount in the account |
|  |  |  | 1512 |  | A1 | accept 1511 – 1512 |
|  |  |  |  |  |  | **SC:** if no other marks gained award M1 for 0.24 × 1200 oe **or** 288 **or** 1488accept (1 + 0.08) as equivalent to 1.08 throughout |
|  |  |  |  |  |  | **Total 3 marks** |

| 19 |  |  |  | 3 | M1 | for continual prime factorisation (at least two consecutive steps correct) or at least two stages of a factor tree, or table, correct. |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | M1 | for a fully correct factor tree or a list (2,2,2,2,5,11) or 2 × 2 × 2 × 2 × 5 × 11 |
|  |  |  | 24 × 5 × 11 |  | A1 | dep M2 for (with working seen) |
|  |  |  |  |  |  | **Total 3 marks** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 20 |  | 180° − (104° + 42°) (= 34°) or  |  | 4 | M1 | for one correct stage |
|  |  |  | 73 |  | A1 | for 73 |
|  |  | * Angles in a triangle sum to 180° or (angles in a triangle sum to 180°)
* Angle *BDC* and angle *DBA* are alternate angles
* Base angles in an isosceles triangle are equal

**or** (Allied / co-interior angles add up to 180°)  | correct reasons |  | B2(B1 | dep fully correct method.for all correct reasons for the method usedNB allied angles may not be needed if using *ABD* sum to 180°dep M1 for one correct reason) |
|  |  |  |  |  |  | **Total 4 marks** |

| 21 |  | e.g.  **or**  **or**  |  | 5 | M2(M1 | for a complete method to find the number of chocolate cakes **or** lemon cakes **or** fruit cakes“10” comes from 3 + 2 + 5for correct use of the ratio e.g. 80 ÷ “10” (= 8)) |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | e.g. “16” × × 1.7(0) (= 20.4(0)) **or** “40” × × 2.4(0) (= 84)   |  |  | M1 | for a method to find the profit for lemon cakes **or** fruit cakes |
|  |  | e.g. “24” × 2 (= 48) **and** “16” × × 1.7(0) (= 20.4(0)) **and** “40” × × 2.4(0) (= 84)  |  |  | M1 | for a method to find the profit for all 3 cakes |
|  |  |  | 152.4(0) |  | A1 |  |
|  |  |  |  |  |  | **Total 5 marks** |

| 22 |  | e.g. 5 × 4 + 15 × 10 + 25 × 15 + 35 × 25 + 45 × 6 (= 1690)**or** 20 + 150 + 375 + 875 + 270 (= 1690) |  | 4 | M2 | For correct products using midpoints (allowing one error) with intention to add.  If not M2 then award M1 for products using frequency and a consistent value within the range (allowing one error) with intention to add or correct products using midpoint without addition. |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | “1690” ÷ 60 |  |  | M1 | dep on M1 |
|  |  |  | 28.2 |  | A1 | accept 28.1 – 28.2 |
|  |  |  |  |  |  | **Total 4 marks** |

| 23 |  | e.g. *a* = (−3 + 47) ÷ 2 (= 22) **or**  (*b* = −38 −11 = −49) **or** method to add 25 to −3**or** method to subtract 25 from 47**or** method to subtract 30 from −19 **or** method to subtract 60 from 11  |  | 2 | M1 | for a correct method to find either coordinate or one coordinate correct. Look for correct method on their diagram, if used.  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |   | *a* = 22, *b* = −49 |  | A1 | both correct |
|  |  |  |  |  |  | **Total 2 marks** |

| 24 |  | Use of 2 hrs 42 mins = 2.7 hrs **or** 162 mins |  | 4 | B1 |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | e.g. 90 × 2.7 (= 243) **or** e.g.  **or** e.g.  |  |  | M1 | for use of *D* = *S* × *T* (accept use of their time e.g. 90 × 2.42) **or** for setting up an equation using proportion |
|  |  | e.g. “243” ÷ 3 **or**  |  |  | M1 | (dep on M1) for their *D* ÷ 3 **or** for solving their equation |
|  |  |  | 81 |  | A1 |  |
|  |  |  |  |  |  | **Total 4 marks** |

| 25 |  | e.g. 31.5(0) ÷ (1 – 0.3) |  | 3 | M2(M1) | for a complete method e.g. 31.5(0) ÷ (1 – 0.3)for 31.5(0) ÷ (100 – 30) (= 0.45) **or** e.g. (1 – 0.3)*x* = 31.5(0) |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 45 |  | A1 |  |
|  |  |  |  |  |  | **Total 3 marks** |

| 26 |  | 15 × 24 (= 360) **or** 25 × 18 (= 450) |  | 3 | M1 | may be implied by 810 seen |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  (=) |  |  | M1 | dep on M1  |
|  |  |  | 20.25 oe |  | A1  | for 20.25 accept 20.3 (allow 20 from correct working) |
|  |  |  |  |  |  | **Total 3 marks** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Edexcel averages: scores of candidates who achieved grade:** |
| **New Qn** | **Question** | **Skill tested** | **Mean score** | **Max score** | **Mean %** | **ALL** | **5** | **4** | **3** | **2** | **1** |
| **1** | Q09b | Powers and roots  | 0.79 | 1 | 79 | 0.79 | 0.95 | 0.62 | 0.69 | 0.14 | 0.40 |
| **2** | Q09d | Fractions  | 1.79 | 2 | 90 | 1.79 | 1.98 | 1.88 | 1.62 | 1.29 | 0.40 |
| **3** | Q09e | Fractions  | 1.78 | 2 | 89 | 1.78 | 1.97 | 2.00 | 1.54 | 1.29 | 0.80 |
| **4** | Q14 | Integers  | 1.38 | 2 | 69 | 1.38 | 1.75 | 1.12 | 0.50 | 1.14 | 0.50 |
| **5** | Q06 | Applying number  | 2.64 | 3 | 88 | 2.64 | 2.80 | 3.00 | 2.64 | 2.43 | 1.17 |
| **6** | Q09 | 3D shapes and volume  | 2.21 | 3 | 74 | 2.21 | 2.70 | 2.88 | 1.14 | 0.71 | 1.00 |
| **7** | Q05e | Mensuration of 2D shapes  | 1.59 | 2 | 80 | 1.59 | 1.90 | 1.75 | 1.15 | 0.86 | 0.00 |
| **8** | Q06 | Applying number  | 3.20 | 4 | 80 | 3.20 | 3.77 | 3.25 | 2.46 | 1.43 | 1.20 |
| **9** | Q10 | Ratio and proportion  | 2.99 | 4 | 75 | 2.99 | 3.82 | 3.12 | 1.54 | 0.86 | 0.20 |
| **10** | Q08 | Probability  | 3.14 | 4 | 79 | 3.14 | 3.24 | 3.00 | 3.21 | 3.14 | 2.67 |
| **11** | Q08 | Expressions and formulae  | 5.27 | 7 | 75 | 5.27 | 6.50 | 5.13 | 3.31 | 1.86 | 1.80 |
| **12** | Q03 | Sequences  | 2.46 | 3 | 82 | 2.46 | 2.81 | 2.13 | 1.85 | 2.43 | 0.80 |
| **13** | Q16 | Standard form  | 3.19 | 4 | 80 | 3.19 | 3.86 | 2.50 | 2.46 | 1.43 | 1.20 |
| **14** | Q14 | Probability  | 3.96 | 6 | 66 | 3.96 | 5.09 | 3.25 | 2.39 | 0.86 | 0.40 |
| **15** | Q07 | Applying number  | 2.98 | 4 | 75 | 2.98 | 3.70 | 2.00 | 2.00 | 2.00 | 1.00 |
| **16** | Q15 | Mensuration of 2D shapes  | 1.39 | 2 | 70 | 1.39 | 1.85 | 1.00 | 0.86 | 0.00 | 0.33 |
| **17** | Q17 | Statistical measures  | 1.94 | 3 | 65 | 1.94 | 2.57 | 1.50 | 0.92 | 0.29 | 0.40 |
| **18** | Q24 | Percentages  | 1.90 | 3 | 63 | 1.90 | 2.55 | 1.38 | 1.21 | 0.14 | 0.00 |
| **19** | Q15 | Powers and roots  | 1.68 | 3 | 56 | 1.68 | 2.27 | 1.38 | 0.69 | 0.00 | 0.40 |
| **20** | Q07 | Geometrical reasoning  | 1.87 | 4 | 47 | 1.87 | 2.50 | 1.62 | 0.69 | 0.43 | 0.20 |
| **21** | Q26 | Ratio and proportion  | 3.21 | 5 | 64 | 3.21 | 4.70 | 1.88 | 0.64 | 0.29 | 0.00 |
| **22** | Q20 | Statistical measures  | 2.68 | 4 | 67 | 2.68 | 3.73 | 1.38 | 1.00 | 0.43 | 0.83 |
| **23** | Q22 | Graphs  | 0.97 | 2 | 49 | 0.97 | 1.50 | 0.38 | 0.00 | 0.00 | 0.00 |
| **24** | Q23 | Measures  | 2.49 | 4 | 62 | 2.49 | 3.67 | 0.75 | 0.79 | 0.00 | 0.33 |
| **25** | Q21b | Percentages  | 1.47 | 3 | 49 | 1.47 | 2.25 | 0.38 | 0.21 | 0.00 | 0.00 |
| **26** | Q21 | Statistical measures  | 1.53 | 3 | 51 | 1.53 | 2.32 | 0.38 | 0.15 | 0.00 | 0.00 |
|  |  |  | **54.76** | **80** |  | **54.76** | **70.10** | **44.04** | **31.31** | **19.59** | **13.93** |

**Suggested grade boundaries**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Grade** | **5** | **4** | **3** | **2** | **1** |
| Mark | 57 | 38 | 26 | 17 | 10 |