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

| 2 | (d) | or 0.75, 0.4, 0.466…, 0.666… or  75%, 40%, 46.6%, 66.6% |  | 2 | M1 | for a method to compare the fractions  If 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 | cao  correct 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 35 e.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 formula  allow 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) seen  or 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 correct  for 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* or  9*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 × 106  do 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 values  5 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” × 84  fraction 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) oe 1.08 × “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** 1488  accept (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 used  NB 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 + 5  for 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 |