**GCSE Mathematics (9-1) Practice Tests Set 8 – Paper 1F mark scheme**

| **Question** | | **Working** | **Answer** | **Marks** | | **Notes** |
| --- | --- | --- | --- | --- | --- | --- |
| **1** |  |  | 0.07 | 1 | B1 | cao |
| **2** |  |  |  | 1 | B1 | cao |
| **3** |  | 840 ÷ 7 (=120) oe **or**  oe  **or** 0.14(2…) × 840 (=120) oe **or** 117.6 | 720 | 2 | M1 |  |
|  |  |  |  |  | A1 | cao |
| **4** |  |  | 11*x* | 1 | B1 |  |
| **5** |  |  | 20*ef* | 1 | B1 |  |
| **6** |  |  | 3 | 1 | B1 |  |
| **7** | (a) |  | E | 1 | B1 | Accept 0.2 |
|  | (b) |  | D | 1 | B1 |  |
|  | (c) |  | C | 1 | B1 | Accept 0.5 |
| **8** | a |  | 6.5 | 1 | B1 |  |
|  | b |  | 8000 | 1 | B1 |  |
| **9** | a | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | **UK** | **Africa** | **USA** | Total | | **Male** | **14** | **7** | 2 | 23 | | **Female** | 16 | 9 | **2** | **27** | | Total | **30** | 16 | **4** | 50 | |  | 3 | B3 | If not B3 then  B2 for at least 4 correct entries  If not B2 then  B1 for at least 2 correct entries |
|  | b | **or** 0.18 | 18 | 2 | M1  A1 | for selecting 9 (may be seen in a calculation) |
| **10** | a |  | 17 | 1 | B1 |  |
|  | b |  | 7*t* + 6*d* | 2 | B2 | B1 for 7*t* **or** (+) 6*d* |
| **11** | a |  | Kenya | 1 | B1 |  |
|  | b | 67 – 27 (may be seen on bar chart) | 40 | 2 | M1 | for *x* – 27  (can be implied by an answer of 39, 41) |
|  |  |  |  |  | A1 | cao |
|  | c | 56 : 42 oe **or** 3 : 4 **or** 1 : oe | 4 : 3 | 2 | M1 | **or** for an unsimplified ratio with one value correct e.g. 56 : 41, 66 : 42  **or** for 53 : 41  **or** for 3 and 4 in incorrect notation |
|  |  |  |  |  | A1 |  |
|  | d | 46 + 37 + 38 (=121) **or** , *m* >46 |  | 2 | M1 |  |
|  |  |  |  |  | A1 | cao |
| **12** |  | 6 × 1000 (=6000) **or** 475 ÷ 1000 (=0.475) | 12 | 3 | M1 |  |
|  |  | 6 × 1000 ÷ 475 **or** 6 ÷ (475 ÷ 1000)**or** 12.6(3…) **or** 475 × 12 (=5700) **or** 475 × 13 (=6175) |  |  | M1 | or for repeated subtraction of 475 from 6000 **or** repeated addition of 475  (may work in grams or kg) |
|  |  |  |  |  | A1 | cao  SC : B2 for an answer of 13 |
| **13** | (a) |  | (2, –1) | 1 | B1 |  |
|  | (b) |  | 3.6 | 1 | B1 | Allow 3.4 to 3.8 and answers written as fractions in this range eg 3½ |
|  | (c) |  | D marked at (–1, –1) | 1 | B1 |  |
| **14** | (a) |  | 24 | 1 | B1 | Accept 32 or 40 or 48 |
|  | (b) |  | 2 | 1 | B1 |  |
|  | (c) |  | No  It is divisible by 3 | 1 | B1 | Only consider reason if No is given. Allow any reason that shows a clear understanding of why 57 is not prime,  eg it is divisible by 19 **or** 3 **or** equal to 3 × 19. |
| **15** | i |  | (triangular) prism | 1 | B1 |  |
|  | ii |  | 5 | 1 | B1 |  |
|  | iii |  | 6 | 1 | B1 |  |
| **16** | a | 12, 24, 36… **and** 20, 40, 60, …**or** 2 , 2 , 3 **and** 2 , 2 , 5 (may be on a factor tree oe) | 60 | 2 | M1 | accept prime factors seen in factor tree **or** correct position in Venn diagram |
|  |  |  |  |  | A1 | for 60 **or** 2 × 2 × 3 × 5 oe |
|  | b | at least 3 of 2, 3, 4, 6, 8, 12 **and** at least 3 of 2, 4, 7, 8, 14, 28**or** 2 , 2 , 2 , 3 **and** 2 , 2 , 2 , 7 (may be on a factor tree oe) | 8 | 2 | M1 | accept prime factors seen in factor tree or correct position in Venn diagram |
|  |  |  |  |  | A1 | for 8 **or** 2 × 2 × 2 oe |
| **17** |  | (= 50) |  | 3 | M1 | could be marked correctly on diagram or in working with no contradiction |
|  |  | 360 –“50” − 90 |  |  | M1 | dep on first M1 |
|  |  |  | 220 |  | A1 | cao |
| **18** |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *x* | −2 | −1 | 0 | 1 | 2 | 3 | | *y* | −1 | 1 | 3 | 5 | 7 | 9 | |  | 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, −1) (−1, 1) (0, 3) (1, 5) (2, 7) (3, 9)  **OR**  for all of (−2, −1) (−1, 1) (0, 3) (1, 5) (2, 7) (3, 9) plotted but not joined |
|  |  |  |  |  | B1 | For at least 2 correct points plotted or stated (ignore incorrect points)  **OR**  for a line drawn with a positive gradient through (0, 3) **and** clear intention to use a gradient of 2  (eg. a line through (0, 3) and (0.5, 5)  **OR** a line drawn with a gradient of 2 |
| **19** | a |  | Reflection in  *x* = −1 | 2 | B1 | for reflection |
|  |  |  |  |  | B1 | for *x* = −1  NB. If more than one transformation then award no marks |
|  | b |  | (3, –1) (3, –5)  (5, –5) | 1 | B1 | condone missing label |
|  | c |  | Translation | 1 | B1 | NB. If more than one transformation then award no marks |
| **20** | a |  | 80 000 | 1 | B1 |  |
|  | b | 0.5 × 105 – 8  **or**  0.0005 **or** 5 × 10*n* **or** 5.0 × 10*n* | 5 × 10-4 | 2 | M1 |  |
|  |  |  |  |  | A1 | for 5 × 10-4 or 5.0 × 10-4 |
| **21** | a |  | *y*14 | 1 | B1 |  |
|  | b |  | 16*m*12 | 2 | B2 | if not B2 then  B1 for *am*12 **or** 16*mb* **or** 24*m*12 *b* ≠ 0, 12 *a* ≠ 1, 16 |
|  | c | 5*x* + 15 = 3*x* – 4  **or** *x* + 3 = | oe | 3 | M1 | for removing bracket in a correct equation or dividing all terms by 5 in a correct equation |
|  |  | e.g. 5*x* – 3*x* = −4 – 15 |  | 2 | M1 | ft from *ax* + *b* = *cx* + *d* for correctly isolating terms in *x* on one side of equation and constant terms on the other side |
|  |  |  |  |  | A1 | dep on at least M1 |
| **22** | ai |  | 1, 2, 3, 4, 6, 12 | 1 | B1 | cao |
|  | aii |  | 1, 3, 5, 7, 9, 10, 11 | 1 | B1 | cao |
| **23** | (a) | **or** –*ac* = −*M* – *bd* **or** |  | 2 | M1 | For a correct first stage |
|  |  |  |  |  | A1 | oe, eg ,  [must have been seen with *a* = to award accuracy mark] |
|  | (b) | 5*x* < 36 + 4 oe |  | 2 | M1 | Accept as equation or with the wrong inequality sign. Also award M1 for an answer with an = sign or the incorrect inequality sign. |
|  |  |  | *x* < 8 |  | A1 |  |
|  | (c) | eg , eg  eg |  | 2 | M1 | Any correct partially factorised expression with at least 2 terms in the common factor **or** for the correct common factor and a 2 term expression inside the brackets with just one error |
|  |  |  |  |  | A1 |  |
| **24** | (a) |  |  |  | M1 | for (*x* + *a*)(*x* + *b*) where either *ab* = −24  **or** *a* + *b* = +2  e.g (*x* – 6)(*x* + 4) |
|  |  |  | (*x* – 4)(*x* + 6) |  | A1 |  |
|  | (b) |  | 4, − 6 | 1 | B1 | cao **or** ft from any (*x* + *p*)(*x* + *q*) |
| **25** | a |  | 110 | 1 | B1 | for 108 – 112 |
|  | b |  | cross marked in correct position | 3 | M1 | for arc drawn radius 7.8 cm – 8.2 cm centre *L* **or** *P* marked 7.8 cm – 8.2 cm from *L*  **or** 40 ÷ 5 (= 8) |
|  |  |  |  |  | M1 | for bearing of 238 o – 242 o from *M* |
|  |  |  |  |  | A1 | Overlay (*P* 7.8 cm – 8.2 cm from *L* and on a bearing of 238 o – 242o from *M*) |
| **26** | a | Two readings from graph 20oC apart eg. readings from 0oC (30 – 34 oF)  and 20oC (66 – 70 oF) | 36 | 2 | M1 |  |
|  |  |  |  |  | A1 | accept answer in range 34 – 38 |
|  | b |  | No with explanation | 1 | B1 | e.g. graph does not go through (0,0) (accept 0) **or** temperatures in oF are not proportional to temperatures in oC **or** gives counter example that doubling does not work **or** 60oC is the same as 140oF (135 – 145) **or** 15oC is not 43oF |

**Practice Tests Set 8 – Paper 1F**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **Edexcel averages:** | **Mean score of students achieving grade** | | | | |
| **Question** | **Skills tested** | **Mean score** | **Max score** | **Mean %** | **ALL** | **5** | **4** | **3** | **2** | **1** |
| Q03 | Fractions | 1.32 | 2 | 66 | 1.32 | 1.76 | 1.62 | 1.41 | 1.05 | 0.67 |
| Q04 | Algebraic manipulation | 0.82 | 1 | 82 | 0.82 | 0.96 | 0.92 | 0.84 | 0.77 | 0.56 |
| Q05 | Algebraic manipulation | 0.77 | 1 | 77 | 0.77 | 0.93 | 0.88 | 0.79 | 0.76 | 0.50 |
| Q06 | Linear equations | 0.89 | 1 | 89 | 0.89 | 0.99 | 0.99 | 0.95 | 0.87 | 0.59 |
| Q07a | Probability | 0.88 | 1 | 88 | 0.88 | 0.98 | 0.96 | 0.92 | 0.82 | 0.70 |
| Q07b | Probability | 0.97 | 1 | 97 | 0.97 | 1.00 | 0.99 | 0.99 | 0.97 | 0.91 |
| Q07c | Probability | 0.87 | 1 | 87 | 0.87 | 0.98 | 0.97 | 0.92 | 0.82 | 0.64 |
| Q08a | Measures | 0.71 | 1 | 71 | 0.71 | 0.89 | 0.83 | 0.71 | 0.62 | 0.47 |
| Q08b | Measures | 0.62 | 1 | 62 | 0.62 | 0.83 | 0.73 | 0.65 | 0.50 | 0.40 |
| Q09a | Graphical representation of data | 2.63 | 3 | 88 | 2.63 | 2.96 | 2.91 | 2.77 | 2.56 | 1.97 |
| Q09b | Percentages | 1.27 | 2 | 64 | 1.27 | 1.79 | 1.57 | 1.34 | 0.98 | 0.53 |
| Q10a | Linear equations | 0.89 | 1 | 89 | 0.89 | 0.99 | 0.96 | 0.92 | 0.88 | 0.69 |
| Q10b | Algebraic manipulation | 1.54 | 2 | 77 | 1.54 | 1.92 | 1.79 | 1.66 | 1.41 | 0.87 |
| Q11a | Graphical representation of data | 0.98 | 1 | 98 | 0.98 | 1.00 | 0.99 | 0.98 | 0.97 | 0.93 |
| Q11b | Graphical representation of data | 1.76 | 2 | 88 | 1.76 | 1.96 | 1.92 | 1.86 | 1.70 | 1.38 |
| Q11c | Ratio and proportion | 1.27 | 2 | 64 | 1.27 | 1.82 | 1.61 | 1.33 | 0.96 | 0.54 |
| Q11d | Fractions | 1.62 | 2 | 81 | 1.62 | 1.95 | 1.87 | 1.73 | 1.47 | 1.01 |
| Q12 | Measures | 2.16 | 3 | 72 | 2.16 | 2.89 | 2.60 | 2.30 | 1.75 | 1.13 |
| Q13a | Angles[comma] lines and triangles | 0.83 | 1 | 83 | 0.83 | 0.96 | 0.91 | 0.87 | 0.77 | 0.57 |
| Q13b | Angles[comma] lines and triangles | 0.80 | 1 | 80 | 0.80 | 0.91 | 0.88 | 0.84 | 0.75 | 0.58 |
| Q13c | Polygons | 0.76 | 1 | 76 | 0.76 | 0.96 | 0.89 | 0.80 | 0.67 | 0.38 |
| Q14a | Integers | 0.90 | 1 | 90 | 0.90 | 0.99 | 0.98 | 0.92 | 0.86 | 0.74 |
| Q14b | Integers | 0.74 | 1 | 74 | 0.74 | 0.95 | 0.88 | 0.78 | 0.63 | 0.39 |
| Q14c | Integers | 0.44 | 1 | 44 | 0.44 | 0.73 | 0.63 | 0.45 | 0.25 | 0.06 |
| Q15i | 3D shapes and volume | 0.64 | 1 | 64 | 0.64 | 0.80 | 0.75 | 0.67 | 0.56 | 0.41 |
| Q15ii | 3D shapes and volume | 0.93 | 1 | 93 | 0.93 | 0.99 | 0.96 | 0.94 | 0.90 | 0.87 |
| Q15iii | 3D shapes and volume | 0.53 | 1 | 53 | 0.53 | 0.70 | 0.64 | 0.50 | 0.48 | 0.37 |
| Q16a | Powers and roots | 0.90 | 2 | 45 | 0.90 | 1.52 | 1.18 | 0.90 | 0.62 | 0.24 |
| Q16b | Powers and roots | 1.15 | 2 | 57 | 1.15 | 1.63 | 1.44 | 1.23 | 0.90 | 0.45 |
| Q17 | Angles, lines and triangles | 1.62 | 3 | 54 | 1.62 | 2.74 | 2.35 | 1.75 | 0.71 | 0.11 |
| Q18 | Graphs | 1.48 | 3 | 49 | 1.48 | 2.68 | 2.31 | 1.43 | 0.68 | 0.09 |
| Q19a | Transformation geometry | 0.67 | 2 | 34 | 0.67 | 1.42 | 1.04 | 0.55 | 0.26 | 0.08 |
| Q19b | Transformation geometry | 0.41 | 1 | 41 | 0.41 | 0.82 | 0.62 | 0.39 | 0.15 | 0.06 |
| Q19c | Transformation geometry | 0.14 | 1 | 14 | 0.14 | 0.44 | 0.23 | 0.06 | 0.01 | 0.00 |
| Q20a | Standard form | 0.77 | 1 | 77 | 0.77 | 0.95 | 0.92 | 0.85 | 0.71 | 0.35 |
| Q20b | Standard form | 1.07 | 2 | 54 | 1.07 | 1.65 | 1.49 | 1.11 | 0.70 | 0.30 |
| Q21a | Algebraic manipulation | 0.68 | 1 | 68 | 0.68 | 0.92 | 0.88 | 0.73 | 0.55 | 0.24 |
| Q21b | Algebraic manipulation | 0.46 | 2 | 23 | 0.46 | 0.86 | 0.61 | 0.45 | 0.25 | 0.12 |
| Q21c | Linear equations | 1.05 | 3 | 35 | 1.05 | 2.38 | 1.64 | 0.87 | 0.34 | 0.09 |
| Q22ai | Set language and notation | 0.56 | 1 | 56 | 0.56 | 0.87 | 0.72 | 0.52 | 0.40 | 0.27 |
| Q22aii | Set language and notation | 0.24 | 1 | 24 | 0.24 | 0.51 | 0.31 | 0.18 | 0.14 | 0.10 |
| Q23a | Expressions and formulae | 0.23 | 2 | 12 | 0.23 | 0.83 | 0.29 | 0.11 | 0.03 | 0.00 |
| Q23b | Inequalities | 0.59 | 2 | 30 | 0.59 | 1.47 | 0.90 | 0.41 | 0.19 | 0.03 |
| Q23c | Algebraic manipulation | 0.30 | 2 | 15 | 0.30 | 0.92 | 0.43 | 0.18 | 0.05 | 0.00 |
| Q24a | Quadratic equations | 0.28 | 2 | 14 | 0.28 | 0.99 | 0.38 | 0.13 | 0.04 | 0.02 |
| Q24b | Quadratic equations | 0.04 | 1 | 4 | 0.04 | 0.22 | 0.03 | 0.01 | 0.01 | 0.00 |
| Q25a | Angles[comma] lines and triangles | 0.22 | 1 | 22 | 0.22 | 0.46 | 0.30 | 0.19 | 0.10 | 0.05 |
| Q25b | Measures | 0.88 | 3 | 29 | 0.88 | 1.88 | 1.25 | 0.78 | 0.44 | 0.12 |
| Q26a | Graphs | 0.15 | 2 | 8 | 0.15 | 0.29 | 0.20 | 0.18 | 0.04 | 0.02 |
| Q26b | Graphs | 0.23 | 1 | 23 | 0.23 | 0.45 | 0.31 | 0.24 | 0.10 | 0.02 |
|  |  |  | **80** | **55** | **44.31** | **63.44** | **54.35** | **44.85** | **34.67** | **22.64** |

**Suggested Grade Boundaries based on peformance of students in Summer 2018**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **5** | **4** | **3** | **2** | **1** |
| 58 | 49 | 40 | 29 | 17 |