**Practice Tests Set 22 – Paper 1F mark scheme**

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **1** | | 7, 58, 123, 180, 202 | 1 | B1 |
| | | | | **Total 1 mark** |

| Q | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **2** | | $\frac{7}{10}$ | 1 | B1 oe eg $\frac{70}{100}$ |
| | | | | **Total 1 mark** |

| Q | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **3** | | 15 | 1 | B1 |
| | | | | **Total 1 mark** |

| Q | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **4** | | 0.015, 0.15, 0.155, 1.15, 1.5 | 1 | B1 |
| | | | | **Total 1 mark** |

| Q | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **5** | eg $35 \times 3 \div 5$ **or** $7 \times 3$ **or** $\frac{3}{5} \times 35$ | | 2 | M1 for a complete method |
| | | 21 | | A1 |
| | | | | **Total 2 marks** |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| **6** | (a) | | 18 | 1 | B1 |
| | (b)(i) | eg 66 − 15 − 9 − 3 − "18"<br>**or** 66 − (7.5 × "6")<br>**or** 66 − 45 | | 2 | M1ft ft their 18 from part (a) |
| | | | 21 | | A1ft ft their 18 from part (a)<br>eg 66 – 15 – 9 – 3 – their answer to part (a) |
| | (ii) | | $3\frac{1}{2}$ diagrams drawn | 1 | B1ft follow through their 21 from (b)(i) |
| | | | | | **Total 4 marks** |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| **7** | (a) | | 3.76 | 1 | B1 |
| | (b) | | Arrow pointing at 0.04 | 1 | B1 |
| | (c) | | 5.7 | 1 | B1 Allow 5,7 |
| | | | | | **Total 3 marks** |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| **8** | (a) | | $7p - t$ | 2 | B2 Fully correct answer (allow $-1t$)<br>(B1 for $7p$ or $-t$ ) |
| | (b) | eg $8 \times 5 - 3 \times 4$ **or** $40 - 12$ | | 2 | M1 for a complete method |
| | | | 28 | | A1 |
| | | | | | **Total 4 marks** |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| **9** | (a) | | $a^5$ | 1 | B1 |
| | (b) | | $24bc$ | 1 | B1 oe |
| | (c) | | $3x + 12$ | 1 | B1 or $12 + 3x$ |
| | | | | | |
| | | | | | |
| | | | | | **Total 5 marks** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **10** | | BL, BM, BS<br>CL, CM, CS<br>DL, DM, DS | 2 | B2 for all 9 combinations with no extras or repeats<br><br>(B1 for at least 4 correct combinations (ignoring repeats)) | |
| | | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **11** (a) | | (−1, 3) | 1 | B1 |
| (b) | | (5, 1) | 2 | B1 for $x = 5$<br>B1 for $y = 1$ |
| (c) | $\frac{1}{2} \times 6 \times 4$ oe | | 2 | M1 for a correct method |
| | | 12 | | A1 |
| (d) | | $D$ indicated at (−1, −1) | 1 | B1 label not required if coordinate clearly indicated |
| | | | | **Total 5 marks** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **12** (a) | | $\frac{47}{100}$ | 1 | B1 oe | |
| (b) | | $\frac{49}{53}$ | 2 | B2 oe accept 0.9245... or 92(.45...)%<br><br>(B1 for $\frac{c}{53}$ where $c < 53$ **or** $\frac{49}{d}$ where $d > 49$) | |
| | | | | | **Total 3 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **13** (a) | | 3 | 1 | B1 |
| (b) | | 7 | 1 | B1 |
| | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **14** (a) | | Parallelogram drawn | 1 | B1 |
| (b)(i) | | Pyramid | 1 | B1 accept square based pyramid or rectangular based pyramid |
| (ii) | | 5 | 1 | B1 Allow five |
| | | | | **Total 3 marks** |

| Question | Working | | Answer | Mark | Notes |
|---|---|---|---|---|---|
| **15** | (−1, −3) (0, −1) (1, 1) (2, 3) (3, 5) (4, 7) | For a correct line between $x = -1$ and $x = 4$ | 3 | B3 | for a correct line between $x = -1$ and $x = 4$ |
| | | | | B2 | for a correct straight line segment through at least 3 of (−1, −3) (0, −1) (1, 1) (2, 3) (3, 5) (4, 7)<br>**or** for all of (−1, −3) (0, −1) (1, 1) (2, 3) (3, 5) (4, 7) plotted but not joined |
| | | | | B1 | for at least 2 correct points stated (may be in a table) or plotted<br>**or** for a line drawn with a positive gradient through (0, −1)<br>**or** for a line with a gradient of 2 |
| | | | | | **Total 3 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **16** (a) | | Pentagon | 1 | B1 |
| (b) | | acute angle clearly indicated with '*A*' | 1 | B1 allow either angle or both acute angles indicated |
| (c) | | reflex angle clearly indicated with '*R*' | 1 | B1 accept either the interior reflex angle, or any of the exterior reflex angles, if labelled outside of the shape with an arc |
| | | | | **Total 3 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **17** (a) (i) | | 35 | 1 | B1 if answer line is blank, check the diagram |
| (ii) | vertically opposite angles are equal **or** vertically opposite angles are equal | | 1 | B1 |
| (b) (i) | (*BEC* =) 180 – 90 – 35 (= 55) **or** (*BEH* =) 35 + 90 | | 2 | M1 for a method to find angle *BEC* **or** *BEH* |
| | | 125 | | A1 if answer line is blank, check the diagram |
| (ii) | eg Angles in a triangle add to 180° (allow angles in a triangle add to 180°)<br>Angles in a triangle sum to 180° (allow angles in a triangle sum to 180°)<br>Angles on a straight line add to 180° (allow angles on a straight line add to 180°)<br>The exterior angle of a triangle is equal to the sum of the interior opposite angles | | 1 | B1 (dep on M1) for one correct reason |
| | | | | **Total 5 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **18** | | $3c^4 + 12c^3$ | 2 | B2 for $3c^4 + 12c^3$<br>(B1 for $3c^4$ or $12c^3$) |
| | | | | **Total 2 marks** |

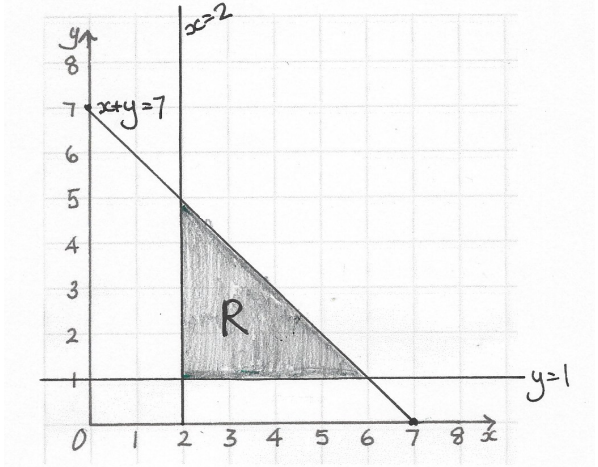
| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **19** (a) | | 7534 | 1 | B1 |
| (b) | eg 3600 − 3574 **or** 3745 – 3600 | | 2 | M1 for 3600 – "number" or "number" – 3600<br>where "number" contains the digits 3,4,5,7.<br>Must have attempted to evaluate this calculation |
| | | 26 | | A1 cao |
| | | | | **Total 3 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **20** | $\frac{8}{3}(+)\frac{15}{4}$ **or** $(2)\frac{8}{12}(+)(3)\frac{9}{12}$ **or** $(2)\frac{8a}{12a}(+)(3)\frac{9a}{12a}$ | | 3 | M1 for correct improper fractions **or** fractional part of numbers written correctly over a common denominator |
| | eg $\frac{8\times4+15\times3}{3\times4}$ **or** $\frac{32}{12}+\frac{45}{12}$ **or** $\frac{32a}{12a}+\frac{45a}{12a}$ **or** $2\frac{8}{12}+3\frac{9}{12}=5\frac{17}{12}$ oe | | | M1 for correct fractions with a common denominator of 12 or a multiple of 12 |
| | $\frac{32}{12}+\frac{45}{12}=\frac{77}{12}=6\frac{5}{12}$ **or** $5\frac{17}{12}=6\frac{5}{12}$ **or** if shows $6\frac{5}{12}=\frac{77}{12}$ at the beginning then show that the addition comes to $\frac{77}{12}$ | Shown | | A1 dep on M2 for a correct answer from fully correct working **or** shows that RHS = $\frac{77}{12}$ **and** fully correct working shows LHS = $\frac{77}{12}$ |
| | | | | **Total 3 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **21** | | Correct triangle | 2 | B2 For a fully correct triangle with arcs shown (B1 for a correctly sized triangle with no arcs shown **or** for an incorrectly sized triangle with arcs shown where $AC = BC$ **or** correct arcs not joined) (overlay required) |
| | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **22** | | add 489 to 13 203 | 2 | B2 oe eg accept 489 + 13 203 (B1 for sight of 489 × 27 = 13 203) |
| | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **23** (a) | enlargement, enlarge, enlarged | Enlargement | 3 | B1 for enlargement with no mention of translate, reflect, rotate, move, flip |
| | scale factor 3, SF 3, ×3, factor of 3, 'three' times | Scale factor 3 | | B1 for (scale factor =) 3 with no mention of a vector, line of symmetry or angle |
| | allow (3, 0) 3, 0 | Centre (3, 0) | | B1 for (centre =) (3, 0) |
| (b) | | Triangle drawn at (1, 4) (1, 6) (2, 4) | 1 | B1 condone missing label |
| | | | | **Total 4 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **24** (a)(i) |  Line length 2cm + but shaded area must be enclosed for the mark in (b) | | 3 | B1 $y = 1$ drawn<br>B1 $x = 2$ drawn<br>B1 $x + y = 7$ drawn<br>Allow dashed lines or solid lines for graphs<br>**condone lack of labels if unambiguous** |
| (ii) | | | | |
| (iii) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| (b) | | | 1 | B1 | correct region shaded – shaded in or out – labelled **R** or clear intention to be the required region<br>(ft only for one vertical line, one horizontal line and one line with a negative gradient) |
| | | | | | **Total 4 marks** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **25** | | 1 | 1 | B1 | |
| | | | | | **Total 1 mark** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **26** | | $5cd^2(2c^2+3d^2)$ | 2 | B2 | for $5cd^2(2c^2+3d^2)$<br><br>B1 for a correct partial factorisation eg $5(2c^3d^2+3cd^4)$ or $cd^2(10c^2+15d^2)$ or $5d^2(2c^3+3cd^2)$ or $5c(2c^2d^2+3d^4)$ or $5cd(2c^2d+3d^3)$ etc<br>or $5cd^2$(a 2 term expression with just one error) |
| | | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **27** | | $\frac{y^2}{2x}$ | 2 | B2 for $\frac{y^2}{2x}$ oe eg $\frac{0.5y^2}{x}$, $0.5y^2x^{-1}$, $\frac{y^2x^{-1}}{2}$, $\frac{1}{2xy^{-2}}$ oe<br><br>If not B2, award B1 for 2 of number, $x$, $y$ correct eg $\frac{ky^2}{x}$<br>where $k \neq \frac{1}{2}$ **or**<br>$\frac{y^2}{2x^m}$ where $m \neq 1$ **or**<br>$0.5y^2$ **or**<br>$\frac{y^p}{2x}$ where $p \neq 2$) **oe**<br>[one term can be missing with 2 correct for B1] |
| | | | | **Total 2 marks** |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| **28** (i) | | | 2 | M1 for $(x \pm 9)(x \pm 1)$<br>**or** for $(x+a)(x+b)$ with $ab = -9$ or $a+b=8$ |
| | | $(x+9)(x-1)$ | | A1 for correct factors |
| (ii) | | $-9, 1$ | 1 | B1 ft dep on factorising in the form $(x+p)(x+q)$ |
| | | | | **Total 3 marks** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **29** | $3 \div 2$ (=1.5 or $\frac{3}{2}$) **or** eg $\frac{5--1}{4(-0)}$<br>**or** $c = -1$ | | 3 | M1 | for correct method to find gradient or the correct value of $c$<br>for gradient, may see a correct calculation **or** $\frac{3}{2}$ oe<br>**or** $1.5x$ (+ $c$) oe<br>for value of $c$, allow $c = -1$, $y = -1$, ($L =$) $mx - 1$ oe |
| | $y =$ "1.5"$x$ (+ $c$) **or** $y = mx - 1$<br>**or** eg $y - 5 = m(x - 4)$ | | | M1 | for use of $y = mx + c$ with either $m$ or $c$ correct (NB: $m \neq 0$)<br>**or** for ($L =$) $1.5x - 1$ oe |
| | | $y = \frac{3}{2}x - 1$ | | A1 | oe eg $y = 1.5x - 1$ |
| | | | | | **Total 3 marks** |

| Question | Working | Answer | | Mark | Notes |
|---|---|---|---|---|---|
| **30** | $(4^n =)(2^2)^n$ **or**<br>$(4^n =)2^{2n}$ oe eg $2^k \div 2^{2n} = 2^x$<br>**or**<br>$2^k = 4^{\frac{1}{2}k}$ **and** $2^x = 4^{\frac{1}{2}x}$ oe eg $\frac{4^{\frac{1}{2}k}}{4^n} = 4^{\frac{1}{2}x}$ | | 2 | M1 | for writing $4^n$ as $\left(2^2\right)^n$ or $2^{2n}$ or<br>for writing each term in terms of 4 ie<br>$2^k = 4^{\frac{1}{2}k}$ **and** $2^x = 4^{\frac{1}{2}x}$<br>If these things are seen in working, award this mark even if followed by incorrect working – if not a choice of methods |
| | | $k - 2n$ | | A1 | allow $2^{k-2n}$ |
| | | | | | **Total 2 marks** |

| | | | | | | Average scores of candidates who achieved grade: | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Question** | **Skill tested** | **Mean score** | **Max score** | **Mean %** | **ALL** | **5** | **4** | **3** | **2** | **1** | **U** |
| **1** | Integers | 0.99 | 1 | 99 | 0.99 | 1.00 | 0.99 | 1.00 | 0.98 | 0.92 | 0.85 |
| **2** | Decimals | 0.90 | 1 | 90 | 0.90 | 0.96 | 0.95 | 0.93 | 0.85 | 0.67 | 0.44 |
| **3** | Fractions | 0.81 | 1 | 81 | 0.81 | 0.99 | 0.94 | 0.79 | 0.58 | 0.37 | 0.07 |
| **4** | Decimals | 0.52 | 1 | 52 | 0.52 | 0.83 | 0.59 | 0.39 | 0.18 | 0.14 | 0.07 |
| **5** | Fractions | 1.63 | 2 | 82 | 1.63 | 1.96 | 1.80 | 1.65 | 1.24 | 0.88 | 0.37 |
| **6** | Graphical representation of data | 3.50 | 4 | 88 | 3.50 | 3.83 | 3.72 | 3.61 | 3.12 | 2.76 | 1.26 |
| **7** | Degree of accuracy | 2.37 | 3 | 79 | 2.37 | 2.88 | 2.66 | 2.31 | 1.87 | 0.00 | 0.00 |
| **8** | Expressions and formulae | 3.06 | 4 | 77 | 3.06 | 3.83 | 3.52 | 2.98 | 2.28 | 0.92 | 0.34 |
| **9** | Algebraic manipulation | 2.32 | 3 | 77 | 2.32 | 2.81 | 2.52 | 2.35 | 1.79 | 1.22 | 0.60 |
| **10** | Probability | 1.39 | 2 | 70 | 1.39 | 1.88 | 1.64 | 1.20 | 0.88 | 0.45 | 0.00 |
| **11** | Graphs | 3.98 | 6 | 66 | 3.98 | 5.51 | 4.31 | 3.43 | 2.78 | 1.89 | 0.80 |
| **12** | Probability | 1.73 | 3 | 58 | 1.73 | 2.43 | 2.12 | 1.50 | 0.84 | 0.27 | 0.04 |
| **13** | Integers | 1.37 | 2 | 69 | 1.37 | 1.56 | 1.40 | 1.40 | 1.21 | 1.08 | 0.71 |
| **14** | 3D shapes and volume | 1.90 | 3 | 63 | 1.90 | 2.32 | 2.09 | 1.76 | 1.51 | 0.00 | 0.00 |
| **15** | Graphs | 1.65 | 3 | 55 | 1.65 | 2.77 | 1.91 | 1.22 | 0.53 | 0.12 | 0.07 |
| **16** | Angles, lines and triangles | 1.68 | 3 | 56 | 1.68 | 2.24 | 1.87 | 1.51 | 1.16 | 0.70 | 0.22 |
| **17** | Algebraic manipulation | 1.02 | 2 | 51 | 1.02 | 1.62 | 1.16 | 0.85 | 0.48 | 0.09 | 0.00 |
| **18** | Geometrical reasoning | 2.44 | 5 | 49 | 2.44 | 3.88 | 2.95 | 1.66 | 0.96 | 0.49 | 0.19 |
| **19** | Integers | 1.36 | 3 | 45 | 1.36 | 1.95 | 1.59 | 1.20 | 0.67 | 0.47 | 0.11 |
| **20** | Fractions | 1.25 | 3 | 42 | 1.25 | 2.24 | 1.37 | 0.99 | 0.32 | 0.07 | 0.07 |
| **21** | Construction | 0.74 | 2 | 37 | 0.74 | 1.29 | 0.86 | 0.44 | 0.24 | 0.17 | 0.04 |
| **22** | Integers | 0.64 | 2 | 32 | 0.64 | 1.19 | 0.72 | 0.37 | 0.17 | 0.15 | 0.00 |
| **23** | Transformation geometry | 1.27 | 4 | 32 | 1.27 | 2.17 | 1.43 | 0.90 | 0.46 | 0.00 | 0.00 |
| **24** | Graphs and Inequalities | 1.21 | 4 | 30 | 1.21 | 2.42 | 1.44 | 0.78 | 0.34 | 0.14 | 0.06 |
| **25** | Use of symbols | 0.27 | 1 | 27 | 0.27 | 0.50 | 0.27 | 0.18 | 0.10 | 0.06 | 0.11 |
| **26** | Algebraic manipulation | 0.47 | 2 | 24 | 0.47 | 1.15 | 0.43 | 0.15 | 0.02 | 0.00 | 0.00 |
| **27** | Use of symbols | 0.40 | 2 | 20 | 0.40 | 0.92 | 0.37 | 0.17 | 0.10 | 0.00 | 0.00 |
| **28** | Quadratic equations | 0.55 | 3 | 18 | 0.55 | 1.28 | 0.45 | 0.34 | 0.06 | 0.00 | 0.00 |
| **29** | Graphs | 0.48 | 3 | 16 | 0.48 | 1.38 | 0.28 | 0.12 | 0.06 | 0.03 | 0.00 |
| **30** | Powers and roots | 0.07 | 2 | 4 | 0.07 | 0.23 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | **41.97** | **80** | **52** | **41.97** | **60.02** | **46.37** | **36.18** | **25.78** | **14.06** | **6.42** |

**Suggested grade boundaries**

| Grade | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| Mark | 53 | 41 | 31 | 20 | 10 |