**PiXL Live Mock Mark Scheme**

**Paper 2 (Calculator) Higher Tier**

|  |  |  |  |
| --- | --- | --- | --- |
| **Q1** | **Answer** | **Mark** | **Additional Guidance** |
|  | 58° Reason | 2 | **B1** cao  **B1** (dep) alternate or Z angle (oe) |
|  | **Total for Question: 2 marks** | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q2** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | 150774.1935 | 2 |  |
| (b) |  | 151000 | 1 |  |
| **Total for Question: 3 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q3** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | 4*m* | 1 | **B1** for 4*m* oe |
| (b) |  | 4*pq* | 1 | **B1** for 4*pq* or 4*qp* or *p*4*q* oe |
| (c) | 5 × 3*x* – 5 × 2 | 15*x* – 10 | 1 | **B1** for 15*x* – 10 cao |
| **Total for Question: 3 marks** | | | | |



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Q4** | **Working** | | | **Answer** | **Mark** | **Additional Guidance** | |
| (a) |  | | | No time period Non-exhaustive response boxes Labels too vague | 2 | **B2** for TWO aspects from: “no time period”, “response boxes not exhaustive (restricted range of responses)”, “Labels on response boxes are too vague”  (**B1** for ONE aspect only) | |
| (b) | How many times did you go to the cinema last month? | | | Includes time period and proper response boxes | 2  **B**  r  [  e | **B1** for inclusion of time period (this may be implied by the labels to the response boxes) | |
|  | 1-2 | 3-5 | > 5 | **1** for at least 3 correctly labelled esponse boxes (non-overlapping)  NB: response boxes need not be xhaustive] |  |
|  |  |  |  |
| **Total for Question: 4 marks** | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q5** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | Points Plotted: (-2, -  7), (-1, -5), (0,-3), (1, -  1), (2, 1)  Jointed to form straight line with ruler |  | 3 |  |
| **Total for Question: 3 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q6** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | 157.75 | 2 | **M1** substitute correctly  **A1** 157.75 or 158 |
| (b) | 2j × 12.5 = 324 | 168 | 3 | **M1**  **M1** correct method to isolate *j*  **A1** 168 or better |
| **Total for Question: 5 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q7** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | 2 | 1 | **B1** cao |
| (b) | *π* × 82 – 2 × *π* ×  22 | 175.9 | 4 | **M1** *π* × 82 (= 201.06…) may be implied by  201  **M1** *π* × 22 (= 12.566…) may be implied by  12.5 or 12.6  **M1**(dep on at least **M1**) for “201…” – 2 ×  “12.56...”  **A1** 175.8 – 176 |
| **Total for Question: 5 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q8** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  |  | Large | 4 | **M1** attempting to compare price for the same weight  **B1** common price and comparison made  **A1** stating large box  **B1** explaining answer clearly |
| **Total for Question: 2 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q9** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) | Plots further data  Draws line of best fit  Reads off value from 2500 | £ 1100 —  1200 | 3 | M1 plots further figures M1 draws line of best fit A1 1100 — 1200 |
| (b) | Draws *y* = 1000  ‘2000’ ÷ 48 | 42 | 2 | M1 draws *y* = 1000 and divides by 48  A1 40 — 44 |
| **Total for Question: 5 marks** | | | | |

1400

1200

1000

BOO

600

400

200

*y* 0.4x + 200

0 500 1 DOD 1500 2000 2500 3000 3500

|  |  |  |  |
| --- | --- | --- | --- |
| **Q10** | **Answer** | **Mark** | **Additional Guidance** |
| (a) | Vertices at  (2, –2), (7, –2), (7, –6), (4, –6), (4, –4), (2, –4) | 2 | **B2** for a fully correct rotation  [**B1** for correct shape with correct orientation  **OR** a 90° anticlockwise rotation about *O*  **OR** a 180° rotation about *O*  **OR** for any 3 correct sides in the correct position] |
| (b) | Translation by | 2 | **B1** for translation  **B1** (indep) for  or 3 right and 1 down |
| **Total for Question: 4 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q11** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | London:  £15, £34, £26 (£75)  → 450, 1020, 780 (2250) KC  Prague:  450, 750, 810  KC (2010KC)  → £15, £25, £27 (£67)  £ to KC is × 30; KC to £ is ÷ 30. | Yes. Cheaper in Prague  (More in London) | 5 | **M1** conversion method (× or ÷ as appropriate) or evidence of use of graph (seen, or implied, by at least lines or evidence of conversion by marks  on axes) for at least one figure.  **M1** (dep) conversion applied to 3 figures or totals (converted figures must be stated, marks on graph insufficient)  **A1** converted figures shown (all three individual items or totals converted correctly; NB: no tolerance on graph)  **M1** totalling converted amounts  **C1** (dep on at least **M1**) comparison of “**totals”**  and correct conclusion  Eg “2250KC” > ”2010KC”, “£75” > ”£67” so cheaper to buy in Prague. |
|  | **Total for Question: 5 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q12** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | –1, 0, 1, 2, 3,  4 | 2 | **B2** cao  (**B1** for at least 5 correct and not more than one incorrect integer) |
| (b) | 6*x* < 9 + 3 | *x* < 2 | 2 | **M1** for correctly separating *x* and non *x* terms or for dividing both sides by 6 [condone use of =, >, ≤, or ≥] **A1** for *x* < 2, accept *x* <  [SC: **B1** for *x* = 2 with no working. But 2 on the answer line with no working gets no marks] |
| **Total for Question: 4 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q13 Working** | | **Answer** | **Mark** | **Additional Guidance** |
| 2 | 48 | 2.6 | 4 | **B2** for trial 2.6 ≤ *x* ≤ 2.7 evaluated  (**B1** for trial 2 ≤ *x* ≤ 3 evaluated)  **B1** for different trial 2.6 < *x* ≤ 2.65  **B1**(dep on at least one previous **B1**)  for 2.6  Values evaluated can be rounded or truncated, but  to at least 2sf when *x* has 1dp and 3sf when *x* has  2dp  **NB** Allow 72 for evaluation using *x* =  2.66  **NB** No working scores no marks even if answer is  correct |
| 3 | 87 |
| 2.5 | 65.(625) |
| 2.6 | 69.(576) |
| 2.7 | 73.(683) |
| 2.65 | 71.6(09) |
| 2.61 | 69.9(79) |
| 2.62 | 70.3(84) |
| 2.63 | 70.7(91) |
| 2.64 | 71.1(99) |
| 2.66 | 72.(021) |
| 2.67 | 72.4(34) |
| 2.68 | 72.8(48) |
| 2.69 | 73.2(65) |
|  | |
| **Total for Question: 4 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q14** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | 0.85 × 800 | 680 | 2 | **M1** for 0.85 × 800  **A1** cao |
|  | **Total for Question: 2 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q15** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  |  | 6.08 hours | 4 | **M1** for mid interval values  **M1** for multiplying frequencies by mid-interval values  **M1** for adding (freq × mid-interval values) ÷ 120  **A1** cao |
|  | **Total for Question: 4 marks** | | | |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q16** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) |  | 18.5 | 1 | **B1** cao |
| (b) | 18.5 x 30.5 | 364.25cm2 | 2 | **M1**  **A1** |
| **Total for Question: 3 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q17** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| **QW C**  **i, iii**  **FE** | AC = 8.5 × sin  68° = 7.881  7.881 + 1 < 9 | Reason supported  by calculation | 4 | **M1**  **M1** AC = 8.5 × sin 68°  **A1** 7.88(1...  **C1** 8.88(1... + conclusion) **QWC: Decision should be stated, supported by clearly laid out working**  Note  does not get marks until in the form |
| **Total for Question: 4 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q18** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| (a) | 9 x 1.5 | 13.5 | 1 | **M1**  **A1** |
| (b) | 10 / 1.5 | 364.25cm2 | 7 | **M1**  **A1** |
| **Total for Question: 4 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q19** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
| **QWC (ii, iii)**  **FE** | 3.02/100 ×  20000 × 3  20000 ×  (1.0298)3 | (£)1812  (£)1841.81  Investment B | 6 | **M1** for a complete process, e.g 3.02/100 ×  20000 × 3 or  1.0302 × 20000 × 3  **A1** for 1812 or 21812  **M2** for a complete process, e.g. (1.0298)3× 20000  (M1 for 1.0298 × 20000 oe or 20596 seen)  **A1** for 1841.81 or 21841.81 seen  **C1** for selecting the greater of '1812' and  '1841.81' or '21812' and '21841.81'  **QWC: Decision must be stated with all calculations attributable** |
| **Total for Question: 6 marks** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q20** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  |  | *k - 19* | 3 |  |
|  | **Total for Question: 3 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q21** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | *a*(*b* – 5) *=* 2 – 7*b ab* – 5*a =* 2 – 7*b ab +* 7*b* = 2 + 5*a b*(*a +* 7) *=* 2 + 5*a* | *b* = | 4 | **M1** for *a*(*b* – 5) or *ab* – 5*a* or *ab* – 5  **M1** for isolating *ab* and 7*b* on one side to get  *ab +* 7*b* oe  **M1** for correctly factorising *b* from *‘ab +* 7*b’*  (term in *ab* must be present)  **A1** for *b =* or *b =* |
|  | **Total for Question: 4 marks** | | | |





|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q22** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | **OR** | 0.869  –1.54 | 3 | **M1** for  allow substitution of *c* = ±4  **M1** for  **A1** for 0.869 and –1.54  **OR**  **M1** for  **M1** for  **A1** for 0.869 and –1.54  **Trial and improvement**: M1 correct set of trials  A1 for 0.869 and –1.54 |
|  | **Total for Question: 3 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q23** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | OR | 17 | 2 | **M1** for  oe  **A1** for 17 (accept 18)  SC B1 for or  (Note: 50 ÷ 3 = 16.6(…) = 17 scores no marks) |
|  | **Total for Question: 2 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q24** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | Angle *BAC* = 180º — 47º — 58º = 75º      Area = × 220 × ‘166.57’ × sin58  = 15538 | 15500 m2 | 5 | **B1** for 75º  **M1**  **M1**  **M1** × 220 × ‘166.57’ × sin58  **A1** 15500 m2 |
|  | **Total for Question: 5 marks** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q25** | **Working** | **Answer** | **Mark** | **Additional Guidance** |
|  | 1 – probability will be the same | 52 / 72 | 4 |  |
|  | **Total for Question: 4 marks** | | | |

**Q26 Working Answer Mark Additional Guidance**

(a) – 6**b** – 6**a** + 12**b** 6**b –** 6**a** 1

**B1** cao

**QWC (ii, iii)**

(b)

= –6**b** – 6**b** + 12**b =**

6**b** – 6**a**

**=** 4**b** – 4**a**

= 12**b** – 3**a**

= 12**b** + 4**b**–4**a** =

16**b** – 4**a**

:  = 3 : 4

4

**M1** for attempt to find or sight of

⅔(6**b** – 6**a)**

**M1** for attempt to find  or sight of

12**b** – 3**a**

**M1** for attempt to find  or sight of

12**b** + 4**b** – 4**a**

**A1** for *OX* : *OY* = 3 : 4 shows that *OX* and *OY* are co-linear **QWC: labelling must be consistent and correct**



**Total for Question: 5 marks**