**Practice Tests Set 7 – Paper 2H mark scheme – Spring 2018**

| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| **1** |  | 3 × (–2)2 – (5 × –2) **or**  3(−2)2 − 5(−2) **or**  3 × (–2)2 – 5 × –2 **or**  3 × 4 − 5 × −2 | 22 | 2 | M1 **or** 12 – – 10 **or** 12 + 10 **or** 12 and –10  A1 cao |
| **2** | (a) | 2.1 ÷ ( 1 + 2 + 3 ) (= 0.35) **or** 2.1 ÷ 6  2.1 ÷ ( 1 + 2 + 3 ) × 2  **or** 2.1 ÷ 6 × 2 | 0.7 | 2 | M1 allow 2.1 ÷ ( 1 + 2 + 3 ) × 3 (=1.05) for the method mark  A1 (accept 0.70) |
|  | (b) | 6 ÷ 3 = 2 **and** 2 × 0.75 **or**  oe | 1.5 | 2 | M1 for a complete method  A1 cao |
| **3** |  |  | 11 | 4 | M1 for 3*x* + 2 = 87 – 2*x*  M1 for 5*x* + 32  M1 for 5*x* = 55  A1 cao |
| **4** | (a) |  | 1160 | 3 | B1 |
|  | (b) |  |  |  | B1 ft |
|  | (c) |  | 1200 (oe) |  | B1 ft |
| **5** | (a) |  |  | 3 | B1 |
|  |  | , |  |  | B1 |
|  |  | , |  |  | B1 |
|  | (b) | ×  +  × |  |  | M1, M1 |
|  |  |  |  |  | A1 |
|  |  | 1 – |  |  | M1 |
|  |  | Conclusion |  |  | C1 |
| **6** | (a) |  | (*x* – 4)(*x* + 4) | 1 | B1 |
|  | (b) |  | (3*x* – 1)2 | 2 | B1 for (3*x* −1)(..*x*….) cao  B2 for (3*x* − 1)2  cao |
|  | (c) |  |  |  | B1 for correct factorisation of numerator  M1 for cancelling of common factors  A1 cao |
| **7** |  |  |  | 2 | M1  oe |
|  |  |  |  |  | A1 4.8 – 4.9 |
| **8** |  |  | 60 | 3 | M1 *p* = 1 stated or used  M1dep  oe  A1 cao |
| **9** | (a) |  | (1, 4) | 3 | B1 |
|  | (b) |  | –0.4, 2.4 |  | B1 |
|  | (c) |  | 3.75 |  | B1 accept 3.7 – 3.8 |
| **10** | (a) |  |  | 2 | M1 |
|  |  |  | or |  | A1 Accept , |
|  | (b) |  | 24 | 2 | B1 for multiple of 24 |
| **11** |  | 4(2*y* + 1) = 3(*y* − 2) | –2 | 4 | M1 for clear intention to multiply both sides by 12 or by a multiple of 12  eg 4(2*y* + 1) = 3(*y* − 2)  2*y* + 1 × 4 = *y* − 2 × 3 |
|  |  | 8*y* + 4 = 3*y* − 6 |  |  | M1 for correct expansion of brackets or correct rearrangement of correct terms  e.g. 8*y* − 3*y* = −6 − 4, |
|  |  | 5*y* = −6 − 4 or 8*y* − 3*y* = −10or 5*y* = −10or −5*y* = 6 + 4 or 3*y* − 8*y* = 10or −5*y* = 10 or 5*y* + 10 = 0 |  |  | M1 for correct rearrangement with *y* terms on one side and numbers on the other AND collection of terms on at least one side or for 5*y* + 10 = 0 oe or for  oe |
|  |  |  |  |  | A1 Award 4 marks if answer is correct and at least one method mark scored |
| **12** | (a) | 2 correct points plotted |  | 2 |  |
|  |  | e.g (0, 4) and (3, 0) |  |  |  |
|  |  | 4*x* + 3*y* = 12 drawn |  |  |  |
|  | (b) |  |  | 3 | Correct region  B2 for *x* = 4 and *y* = −3 drawn **and** consistent shading correct for at least two inequalities  B1 for *x* = 4 and *y* = −3 drawn |
| **13** |  | **OR**  **OR**  (isolating *c*2)  (oe) |  | 3 | M1  M1 dep  A1 |
| **14** |  |  |  | 3 | M1 correct coefficient |
|  |  |  |  |  | M1 finding *a* and *c* or *b* and *c* |
|  |  |  | 2*x*2 + 7*x* + 4=0 |  | A1 cao |
| **15** | (a) |  | 26 | 3 | M1 for using values 0 and 6  M1 for substituting values into trapezium rule,  e.g.  × 2 × ((0 + 8) + 2(4 + 5))  A1 cao |
|  | (b) |  |  | 1 | C1 under-estimate as chords are under curve |
|  | (c)  (d) |  | 3.4 – 3.9 | 2  1 | M1 tangent to curve drawn at *t* = 8  C1 acceleration in m/s² |
| **16** |  | Number of boys possible is 15  Number of possible girls is 9  Each boy can be paired with 9 different girls  15 × 9 | 135 |  | P1 Process to find the number of combinations  A1 for 135 |
|  |  |  | Tom with correct reason |  | C1 Convincing reason  eg. correct calculation is 15 × 14 ÷ 2 |
| **17** |  | *a* : *b* = 30 : 48 or *b* : *c* = 48 : 200 |  | 3 | M1 |
|  |  | *a* : *b* : *c* = 30 :48 : 200 | 15 : 24 : 100 |  | A1, A1 |
| **18** |  |  | 300 and correct assumption | 4 | M1 for partial working, e.g.  oe  or 40% or  or 20 ÷ 8 or seen  M1 for complete method e.g.  or 15 × 20  or  =  or 120 ÷ 0.4 oe  A1 cao  C1 for a correct mathematical assumption, e.g. mark does not wear off or sample is random or population has not changed, etc |
| **19** |  | e.g. **or**  **or**  **or**  **or**  **or**  **or** oe |  |  | Correct first stage. |
|  |  | e.g.  **or** 0.5 × 10-3*n* oe **or** |  |  | For dealing with 8−⅓ (shown as ½ or 0.5) and (109*n*) −⅓ shown as 10−3*n* |
|  |  |  | 5 × 10-3*n* – 1 | 3 | 5 × 10-(3*n* + 1) |
| **20** | (a) | × |  | 2 | M1 |
|  |  |  |  |  | A1 cao |
|  | (b) | × |  | 3 | M1 |
|  |  | ×  +  ×  ×  +  ×  +  ×  ×  +  × |  |  | M1 for terms seen |
|  |  |  |  |  | A1 |

**Suggested grade boundaries**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **9** | **8** | **7** | **6** | **5** | **4** |
| **Paper 1H** | **68** | **60** | **52** | **44** | **35** | **26** |
| **Paper 2H** | **72** | **62** | **52** | **42** | **32** | **22** |
| **Paper 3H** | **58** | **50** | **42** | **34** | **26** | **18** |
| **Total** | **198** | **172** | **146** | **120** | **93** | **66** |