**SET 3**

**MATHEMATICS 121/2**

**MARKING SCHEME**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | |  |  |  | | --- | --- | --- | | NOS | Sf | Logs | | 6.196  11.82  83.52  60.9675 | 6.196x 10o  1.182x 101  8.352  -  - | 0.7921  -  +  1.0728  1.8649  1.9218  1.9431÷3  1.9856 |   4 + 3.9431  4 | M 1  A1  M1  A1  4 | For correct logs  For √ addition and sub  For √ division by 4  √ answers |
| 2. |  | M1  A1  A1  3 | Multiplying by 25  √factorization |
| 3 |  | B1  B1  B1  3 |  |
| 4 |  | M1  A1  03 | Relative speed  C.A.O |
| 5 | = | M1  M1  A1  03 |  |
| 6 | Log 2(= log 2x-log 24  Log 2 (x+3) =log 2 | M1  A1  02 | Dropping logs  C.A.O |
| 7 |  | B1  B1  B1  B1  04 | Gradient of L1  L1 correct inequalities  L2 correct inequalities  L3 correct inequalities |
| 8 | ∠OTP 90 o  ∠POT =  =70o  ∠ROT= 110o (angles on a straight line)  ∠RST = 110o  2  = 55o angle at centre and circumference of the circle | B1  B1  B1  03 |  |
| 9 |  | M1  M1  A1  3 |  |
| 10. |  | B1  B1  B1  03 |  |
| 11 | (a)    -2d=20        (b) S15= | B1  B1  M1  A1  04 |  |
| 12. | = | M1  M1  A1  03 |  |
| 13. | (a)  (b) 7 = (1-0.06)7  (1+x)7=(1-0.06)7    =1+7(-0.06)+23(-0.06)2+35(0.06)3    = | M1  A1  M1  A1  04 |  |
| 14. | 2  K=2  X=2y2  X=2(4) 2  =32 | M1  A1  02 |  |
| 15. | ∴    ∴  =3:2 | M1  M1  A1  03 | √ values of x and y  √ correct ratio |
| 16 | 2 = | B1  B1  B1  3 |  |
| 17 |  | M1  A1  M1  A1  M1  M1  A1  A1  M1  A1  10 |  |
| 18 | 7 |  |  |
| 19 | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | y | -13 | -6 | -1 | 2 | 3 | 2 | -1 | -6 | -13 |      |  |  |  | | --- | --- | --- | | X | 0 | 3 | | y | -3 | 3 | |  |  |
| 20 | **Q**  **R**  S  **P**  SQ = 5.8 ±0.1  **P**  S  Q  O  R  **O**  **P**  **P**    r=4cm  B1 construction 45o  B1 PS and SQ drawn  B2 completion of parallelogram  B1 SQ=5.8±0.1  B1 bisector of SQ  B1 bisector QR  B1 location of O  B1 circle drawn  B1 radius 4±0.1  10 |  |  |
| 21 | (a) =  A-1=      (b)   =  =      ∴  (c)                  =. | B1  B1  B1  M1  M1  A1  M1  M1  M1  A1  10 | Determinant  Inverse  Premultiplying RHS by inverse |
| 22. | **O**  **4**  **N**  **A**  **B**  **2**  **M**  **3**  **1-t**  **S**  **X**  **1-S**  **t**  **1**    (a) (i) AN = -a + 4/5 b      (ii) BM = -b + 2/5 a      (b)(i) OX= a + S(-a+ 4/5b)  OX=b+(-b+ 2/5a)      (c) a+ 5(-a+ 4/5b) = b ++(-b+2/5a)            1-s= 2/5t…(i)  1-t= 4/5s….(ii)  (2t +5s= 5)5  (5t+4s=5)s  10t+255 =25  10t+8s=10  17s =15    S= 15/17  t=-4/5(5/17)  t=5/17  OX= (1-15/17) a + 4/5(15/17) b      = 2/17 a + 12/17b | B1  B1  B1  B1  M1  M1  M1  A1  B1  B1  10 |  |
| 23 | ¼  ¾  H  1/3  2/3  C  C  C  C  1/5  4/5  1/5  4/5  1/5  4/5  4/5  1/5  L  L1  L  L  L1  L 1  L  L  L1  (b)(i) (H1C1L1) = ¾ x 2/3 x 4/5  = 2/5 or 0.4  (ii) P(HC1L1) or P(H1CL1) or P(H1C1L1)          ©(i) PC1- P (none be late)  =    (ii) | B2  M1  A1  M1  A1  M1  A1  M1  A1  10 |  |
| 24 |  | B1  M1  A1  M1  A1  M1  M1  A1  M1  A1  10 | All the three fractions |