**MATHEMATICS 121/2**

**FORM THREE**

**TERM 2 2015**

**MARKING SCHEME**

|  |  |  |
| --- | --- | --- |
| 1No. Log.  0.0034 3.5315  0.0245 2.3892  Sin54.31 1.9097+-  2.2989  1.708x 10-1 1.2326  0.1708 | M1  M1  A1 | All correct logs  + and –  Accept 1.708x 10-1 |
|  | **3** |  |
| 2. N: + x =  D: x x x =  x = 2 | M1  M 1  A1 | For  For  Accept 2.054 |
|  | **3** |  |
| 3. A =2πrh + 2 but h = 3r  **=** 6πr2 + 2  =6xxr2 + 2xx r2 = 616  **=**  r2 + r2 = r2  r =  4.95cm | M1  M1  A1 |  |
|  | **3** |  |
| 4. (10)Sin40o(12 + 6)  90Sin40o  67.06 | M1  M1  A1 |  |
|  | **3** |  |
| 5. N: (3t – 5a )(3t + 5a)  D**:** (3t + 5a)(2t + 3a)  (3t – 5a )(3t + 5a)  (3t + 5a)(2t + 3a)  (3t – 5a )  (2t + 3a) | B1  B1  A1 |  |
|  | **3** |  |
| 6**.** Buying price = x 2400  = 2160  **=**Sh. 1800 | M1  M1  A1 |  |
|  | **3** |  |
| 7 T = AI – A  –  P = PI – T  =  **-**  **=**  P(-1, -3) | M1  M1  A1 |  |
|  | **3** |  |
| 8. |  |  |
|  | **4** |  |
| 9. hypotenuse = 242 + 102)  Sin x = and Cos x =  Sin x - Cos x = - | M1  B1  M1  A1 | Both equations  Allow |
|  | 4 |  |
| 10. 8x = 3x + 6y  8x – 3x = 6y  5x = 6y  x : y = 6 : 5 | B1  A1 |  |
|  | 2 |  |
| 11.  2 - 2  4 - 3  5 - 26  b = -2 | M1  A1  B1 |  |
|  | 3 |  |
| 12. 4(4 + y) = 12 x 8  4 + 4y = 24  Y= 20 | M1  M1  A1 |  |
|  | 3 |  |
| 13. Biasha’s = 360 – (81 + 216) = 84 votes  63o = 84  Total votes =  = 480  Jamal’s votes =  = 288 | M1  M1  A1 |  |
|  | 3 |  |
| 14. x2 -x = 3x + 3x  2x2 + 4x = 0  2x(x + 2) = 0  X = 0 or x = -2 | M1  M1  A1 | X(x -1)- 3x(x + 1) = 0  Factorizing  Both answers |
|  | 3 |  |
| 15 vol. of cylinder = vol. of sphere  72x5 = r3  r3 = 245 x = 5.75  S A = 4r2  = 4 x 3.142x (5.75)2  = 415.6 cm2 | M1  A1  M1  B1 |  |
|  | 4 |  |
| 16. (a - b)(a + b)  (2557- 2547)( 2557 + 2547)  10 x 5101=51010 | B1  M1  A1 |  |
|  | 3 |  |

**SECTION II**

|  |  |  |
| --- | --- | --- |
| 17. a) x x 212  462cm2  b) x x 42  44 + 42  86  c) i) r x 21 = 462  r =  = 7 cm  ii) h = 212 – 72)  = 19.8 cm | M1  A1  M1  M1  A1  M1  M1  A1  M1  A1 |  |
|  | 10 |  |
| 18.  Area of circle = 22/7x 4x4= 50.27cm2  Area of triangle = ½x 8x6 sin300 = 12cm2  50.27cm2 - 12 cm2 =38.27 cm2 |  |  |
|  |  |  |
| 19.a) RST = 1800 - 750  1050  oppositeanlges of cyclic quadr.  b) SUT = 1800 –(380 + 1190)  = 230  angle sum of a triangle  c) = 440  subtended by arc/chord PT  d) Obtuse = 1800- (2x15)  angle sum of a triangle  e) = 1800 – (900 + 520)  angle sum of a triangle | B1  B1  B1  B1  B1  B1  B1  B1  B1  B1 |  |
|  | 10 |  |
| 20.a) Abdullah = oranges  Vivian = oranges  +  b) - = 2  45x – 45x + 33.75 = 2x(x – 0.75)  33.75 = 2x2 – 1.5x  8x2 – 6x – 153 =o  X =  =  X= -375 or 4.5  X= Ksh. 4.50  Abdullah Kshs. 4.45 per orange  Vivian 4.50 -0.75  Kshs. 3.75  c) Abdullah = = 12 oranges  Vivian = 14 oranges  Total number = 12 + 14  = 26 oranges | B1  M1  B1  M1  B1  M1  A1  B1  M1  A1 | Both expressions  Simplified expression  Simplified equation |
|  | 10 |  |
| 21. a) 102 = 82 + 52n2x8x5cosB  Cos B = = -  B = Cos-1(- )  = 97.90  b) = 2R  R = = 5.048 cm  c) =  Sin A = Sin 82.1 = 0.6984  A = 43.90  COD = 2x43.9  = 87. 80  Area of a sector = x x 5.0482  = 19.5316  Area of triangle = x5.04329Sin 87.8  = 12. 7313  Shaded area = 19.5316 -12. 7313  = 6.8 cm2 | M1  M1  A1  M1  A1  M1  M1  M1  M1  A1 |  |
|  | 10 |  |
| 22. a) Total sales= 360 x 500  = Kshs 180, 000  Commission = 180, 000- 100, 000  = .02x80,000  = 1600  Total earnings = 12, 000 + 1600  =Kshs 13, 600  b) i) New salary = x12, 000  Kshs 13, 200  Commission paid = 17, 600 – 13, 200  = Kshs 4400  Commission is paid on = 4400x  =Kshs. 220, 000  Total sales = 220, 000 + 100, 000  = 320, 000  ii) No. of bags =  = 640 | M1  M1  A1  M1  M1  A1  B1  M1  M1  A1 | x12, 000 |
|  | 10 |  |
| 23. a) gradient of the line=  =  =  3y – 6 = -2x + 6  2x + 3y = 12  + =  + = 1  b) A(6,0)  B(0, 0)  c) Area = x 6x4  = 12 sq. units  d) y = - x + 4  tan =  tan-1()  =33.690 | M1  M1  M1  A1  B1  B1  M1  A1  M1  A1 | Dividing by 12 |
|  | 10 |  |