**MATHEMATICS**

Form 3

**MARKING SCHEME**

**SECTION I**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **WORKING** | **MARKS** | **GUIDELINES** |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  | |  |  |  |  | | --- | --- | --- | --- | | 3 | 21 | 15 | 9 | | 3 | 7 | 5 | 3 | | 5 | 7 | 5 | 1 | | 7 | 7 | 1 | 1 | |  | 1 | 1 | 1 | | M1  M1  A1 |  |
|  |  | 04 |  |
|  | thus  thus | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 3 |  |
|  | Ignoring negative answer | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  | Integral values | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  A1  A1 |  |
|  |  | 03 |  |
|  | Numerator:  Denominator | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |
|  |  | M1  M1  A1 |  |
|  |  | 03 |  |

**SECTION II**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **WORKING** | **MARKS** | **GUIDELINES** |
|  | 1. (i)   (ii)  Juma = sh 3560  Wanjiku = sh 3075  Difference = 3560 – 3075 = 485 | B1  B1  M1  M1  A1  M1  M1  M1  M1  A1 | For both answers |
|  |  | 10 |  |
|  | 1. (i**)**   (**ii**) | M1  M1  A1  M1  M1  M1  A1  M1  M1  A1 |  |
|  |  | 10 |  |
|  | 1. Time before the matatu started   = 13.15 – 11.45 =  Distance covered by the bus =  Distance between them =  Relative speed =  Time taken to meet =  Time they met = 1.15pm + 3 hours = 4.15pm   1. Distance from town A to the point of meeting   Time =  Distance from A =   1. Time taken by the matatu from B to A   The matatu reaches A = 13.15pm +6hrs = 1915hrs  Time travelled by the bus when the matatu reaches A  1915hrs – 1145hrs =  Distance moved by bus from A =  Distance outside town B | M1  M1  M1  A1  M1  A1  M1  M1  M1  A1 |  |
|  |  | **10** |  |
|  | Solving simultaneously  , (x ,y) | M1  M1  A1  M1  M1  A1  M1  M1  A1  A1 |  |
|  |  | 10 |  |
|  | 1. (**i)**   (**ii**)    Total tax = 4104  Net tax =  = 3048 | M1  A1  M1  A1  M1  M1  M1  M1  M1  A1 |  |
|  |  | 10 |  |
|  |  | M1  M1  M1  A1  M1  A1  A1  M1  M1  A1 |  |
|  |  | 10 |  |
|  | Geometric progression | M1  M1  A1  B1  B1  B1  B1  M1  M1  A1 |  |
|  |  | 10 |  |
|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | 12x | -24 | -12 | 0 | 12 | 24 | 36 | 48 | 60 | 72 | | -3x2 | -12 | -3 | 0 | -3 | -12 | -27 | -48 | -75 | -108 | | y | -36 | -15 | 0 | 9 | 12 | 9 | 0 | -15 | -36 |   ***2 mks for correct table***  y = 5 ( x – 2 )  y = 5 x – 10   |  |  |  |  | | --- | --- | --- | --- | | x | 0 | 2 | 5 | | y | -10 | 0 | 15 |     i) roots of 3 x ( 4 – x) = ) are x = 0, x = 4  ii) Maximum value of y = 3x ( 4 – x ) when x = 2 , y = 12  the maximum value of y = 12  iii) roots of equation 3x ( 4 – x ) = 5 ( x – 2 ) is where the curve cuts the line  y = 5 (x -2 )  The roots arc x = -1 and x = 3.3 ± 0.1 | B1  B1  S1  P1  C1  L1  B1  B1  B1B1 | Table  ✓B1 for both values of x |
|  |  | 10 |  |