**MERU CENTRAL CLUSTER EXAMINATION**

**121/1**

**MATHEMATICS PAPER 1**

**TERM 2, 2020**

**DECEMBER 2020**

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
| Q |  |  |  |
|  | Num Den      =  =  = | M1  M1  A1 | Numerator  Denominator  Accuracy |
|  | 118 yens = ksh. 76  2,950,000 yens = x 76  =ksh. 1,900,000  The duty paid x 1,900,000  =Ksh. 380,000 | M1  M1  A1 |  |
|  | 2 + = 2 hours  2 x 120 = 320 km  = 80 litres  80x59 = 4720 sh. | B1  M1A1 |  |
|  | 2  2 x x 21 x h = 1980  h= = 15cm  v = r2h = x 212x 15  =  =20.8l | M1  M1  A1 |  |
|  | Adjacent = -52 = 12 B1 for 12  Tan (90 – ) = 12/5 B1 - answer | B1  A1 |  |

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|  | 1. 2x – 5y – 10 = 0   5y = 2x – 10  Y = x - 2  M1=  M2 = B1 gradient of L2  = M1 Equation  2y + 4 = -5x +2s  2y= -5x + 21 A1 answer  Y = x + | B1  M1  A1 |  |
|  |  | M1  M1  A1 | Alternative  (n-2)180=80+  (n-1)128 |
|  |  | M1  M1  A1 |  |
|  |  | M1  M1  A1 |  |
|  |  | B1  M2  A1 |  |

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|  | a)    b) | B1  B1  B1  B1  04 | For C  For complete  ABC  For the height |
|  | Internal dimensions  Length = 40cm  Width = 20cm  Height = 15cm  Volume of container= 40 x 20 x 15 = 12000cm3  8 liters = 8000cm3  Unoccupied volume = 4000    h = 5cm  ALT2  40 x 20h = 8000  H=10  changle = 15 – 10  = 5cm  Alt 3  40 X 20 (H – 0.5) = 8000  H= 10.5  15.5 – 10.5 = 5cm | B1  M1  A1  B2 M1  A1  B2M1 M1A1 | dimensions seen  Equation and solving |
| a. | C:\Users\KITHIRUNE DAY\Documents\img20201130_10275838.jpg  (b) centre of rotation = (4,-2)  Angle of rotation = +900 | D2  B1  B1 |  |
|  | 2x – 2  -2 – 1  -3 B1 for -3  3x + 1 < x + 11  2x < 10  X<5 B1 for x < 5  -3  Integral values -3,-2, -1, 0, 1,2,3,4 B1 – All correct integral values | B1  B1  B1 |  |
|  | = M1 Equating  QR = =22.55cm A1 answer for QR  Area = ½ x 12 x 22.55 x sin 800 M1 - Equation  = 133.2 (to 4 s.f -A1 – Answer for 4 s.f  NB- FOLLOW THRO | M1  A1  M1  A1 |  |

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|  | Let the number = xy  X+y = 13 y = 13 – x  (10x + y) – (10y + x) = 9  9x – 9y = 9  x-y = 1  x-1 = y  x-1 = 13- x  2x = 14  X=7  Y=13-7  =6cm A1 – both values correct  Original number = 76 B1 –for the digit | M1  B1  A1 | Equation |
|  |  | M1  A1  M1  A1  B1  M1  A1  M1  M1  A1  10 | or equivalent  C.A.O  or equivalent |
|  | (a) a =  2.75 =  t=  = 8 sec  (b) Distance = ½ x 8 x 22  = 88m  (c) 847 = ½ ( 40+t) + 32) x 22  847 = ½ (72 +t) x 22  1694 = (72+t) 22  = 72 + t  T = 5 sec  T = 40 +t = 40+5 = 45 sec.  (d) a = =  = -4.4m/s2 | M1  M1  A1  M1  A1  M1  M1 A1  M1  A1 | Equation  Simplifying  Equation  Expression  for 5sec Adding 40 +5  Expression |
|  |  | B1  M1  A1  B1  M1  M1  B1  M1  B1  B1  10 |  |

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|  | C:\Users\seceretaly\Documents\Scanned Documents\Image (25).jpg | A1  A1 | A’(0,10)  B’(2,6) 3  C’(2,10)  A”(10,2)  B”(6,2) 3  C”(10,2)  ABC =2 |

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| --- | --- | --- | --- |
|  |  | B1  B1  B1  B1  M1  B1  B1  B1  B1  B1  10 |  |

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|  | b (i) distance BC = 6.9cm = 6.9 x 10 = 69km  Bearing of B from C = 0.35 1  (ii) Distance BD = 5.7 x 10 = 57km  Bearing of B and D = 063  (iii) distance = 80km + 30km + 50km + 57km  = 217km | M4  M1A1  M1A1  M1A1 |  |
|  | 1. (a) (i) B1 Expression   (ii) B1 Expression  (b) - 60 = M1 equation  16200 (x +3) – 60x (x+3) = 16200x  1620~~0~~x + 48600 – 60x2 – 180x = 16~~2~~00x M2 (removing L.C.M)  60x2 +180x – 48600 = 0  X2+3x – 810 = 0  (x+30) (x – 27) = 0 M1 simplified equation  X = -30 or 27  No. of calculators = 27 A1 - Answer  (c) initial cost =  = 600  After discount =  = 540 B1 – Both 600 and 540 seen  % discount = x 100% M1 - Expression  = 10% A1 – Answer | B1  B1  M1  M2  M1  A1  B1  M1  A1 |  |
|  |  | M1  A1  B1  M1  A1  M1  A1  M1  M1  A1  10 |  |