**MATHEMATICS PAPER 1**

**MARKING SCHEME**

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| 1. |  | M1M1 A1 **03** |
| 2. | 2.541 + (2.311)2= 2.541 + 2(5.307)= 2.541 + 10.61=13.155  | M1 M1M1A1 **04**  |
| 3. |  χ + 5y = 129250  2χ - 4y = 22000  6χ + 10y= 258500 - 6χ - 12y= 66000 22y = 192500  y = 8750  χ = 28,500  | M1 bothM1eliminatioA1**03**  |
| 4. |  | M1 M1 A1 **03** |
| 5. |  x = 243Change to base 3x = 2 (x – 1) + 2x + 1 = 52x – 2 = 2x + 1 = 54x – 1 = 54x = 6x = 1.5 | M1M1A1 03 |
| 6. | (x + 2 ) ( x – 5 ) = 60 x2 – 5x + 2x – 10 = 60 x2 – 3x – 70 = 0 x2 – 10x + 7x – 70 = 0 x ( x – 10) + 7(x – 10) = 0( x – 10) ( x +7) = 0 x = 10 x = -7 Length 10 + 2 = 12m |  |
| 7. | 98.54 x 1200 = 118248 45600 + 118248 = 163848 = 1666 dollars | M1 M1M1 **03** |
| 8. | HCF of 240, 320 and 380 120 320 3802 120 160 1902 60 80 955 12 16 19HCF = 2 x 2 x 5 = 20 cmArea = 202 = 400cm2 | M1M1A1 03 |
| 9. | x + x = 180 x = 180 x = 180 x 8 9 = 160 Exterior ˂ = x 160 = 20 No. of sides 360 = 18 20 | M1 A1 B1 03 |
| 10. | 2ϴ + 30 + ϴ - 60 = 90 3ϴ = 120 ϴ = 40 Tan 40 = 0.8391 | M1M1A1 **03** |
| 11. |  = 1.2 x kk = = 5Length in cm Frequency7.5≤ x ≤ 9.5 129.5 ≤ x ≤ 11.5 5 x 1.6 = 1611.5≤x ≤ 15.5 5 x 0.8 x 4 = 1615.5≤ x ≤ 21.5 5 x 2 x 6 = 60 | B1 ✓Constant B1B1B1 04 |
| 12. | i) at P y= o :. 3(0) + 4(x) = 12 x = 3 P(3,0)ii) y= - 4/3 *x* + 3 m1 = - 4/3 m2 =3/4  y – 0 = 3/4 x- 3 4y = 3x – 9 :. Y = 3/4*x*– 21/4 | M1M1A1  |
| 13. | L. S. F 12 : 8= 3 : 2V.S. F = 27 : 8 27 = 2litres 8 = ? = 592.592593 | B1 M1 A1 **03** |
| 14. | AB= -2(K+12) -9 (2K-16)=10-2K-24-18K+144=10-20K = -110∵K=5.5 | M1M1A1 |
| 15. | Total ration ¼ + ½ + 1/5 = 5+10+4 = 19  20 20Vol. Shared = 19 x 1000 = 950cm3 20Soita = ½ x 950  19/2010 x 950 = 500cm3 19 | M1 M1A1 **03** |
| 16. |  = 2(0.48) – 0.300.96 – 0.30= 0.66 | M1M1A1 03 |
| 17. | a) V.R = 90+110 = 200km/h 10.35a.m – 8.15a.m = 2hrs 20min = 2 1/3 hrs Distance covered by matatu by 10.35cm = 7/3 x 90 = 210km Remaining distance 760 – 210 = 550km Time taken = 550 = 2 ¾ hrs 200 Distance minibus had moved = 11 x 90 = 247.5km  4Distance from A = 210 + 247.5  = 457.5km b) They met at 10.35  2.45  13.20  = 1320hrs or 1:20pm c) By 10.30a.m minibus had covered  9 x 90 = 202.5km  4 Time taken by minibus to **B**  760 – 202.5 = 67/36hrs = 6.19hrs  90 Distance covered by the motorist in this time. 6.19 x 100 = 619km | B1 B1B1A1M1 for addition A1B1B1 M1 A1 **10** |
| 18. | C:\Users\Lillian\Pictures\2013-05-27\008.jpgA1 = = B1 = = C1 = = A11 = B11 = C11 = A111 = B111 = C111 = AIV = BIV = CIV = Object and image 1, image 3, image 4, | B1B1B1B1B1B1B1B1 |
| 19.a | (i) (4000 x 12) +(1100 x 12)= Sh. 61,200 (ii) 1st slab 4200 x 2 8400  2nd slab 3800 x 3 = 11400 3rd slab 4600 x 5 = 23000 42800 4th slab y x 6 = (61,200 – 42800) y = K₤ 3066.67 Taxable income= (12600 + 3066.70 = K₤ 15666.67 (iii) - 10800= KSh. 15,311.12(iv) 26111.12 – 4000= Sh. 22,111.12 | M1A1 or 5100 x 2M1M1M1A1M1A2 M1A1 |
| 20. | (a) Pq = 2(8sin 35) = 9.177 = 9.18(b) =  = 13.42 = 13.42(c) Area of minor segment circle centre A x 3.142 x 8 x 8 - x 8 x 8sin 70 = 9.03(d) Area of minor segment circle centre B x 3.142 x 13.422 – x 13.42 x 13.42 x sin 40 =4.99(e) Area of shades region = Area of ΔsAPQ and PQB – Area =(30.07+57.88)-(9.03+4.99) =73.93 | M1A1M1A1M1A1M1A1M1 A1 |
| 21. | (b) (i) N200W (ii) 5420W(c) (i) 6.4 x 100knm = 640km (ii) 8.8 x 100km = 880(d) (i) 3000 (ii) 2680  | B1 A locatedB1 B locatedB1 C locatedB1 D located B1B1B1B1B1B1 |
|  |  | **10** |
| 22. | PSOQRTOS = OP QT = OSOR = OQ(i) SR = SO + OR= P + Q= (Q – P)(ii) QR = QO + OS= Q + P= P – Q(iii) PT = PS + ST= -P + (-QS)= -p + (Q - P)=-p + q - p= - - p + q=-p + q= q - p(iv) TR = TQ + QR= QR - Q= -(p – q) - Q= -p + q - q= - P + Q= Q - PPT = Q - PTR = Q - P∴ PT = 3TR or PT = RTCommon point TPT is a multiple of TRPT = 3TRHence PTR are collinear | B1B1M1A1M1A1M1A1M1 (both seen)M1 (both seen)A1 conclusion |
| 23. | 1. -the angle which the chord makes with tangent is equal to the angle subtended by the same chord in the alternate segment of the circle
2. -Diameter subtends right angle at any point on the circumference of the circle
3. - The base angles of isosceles triangle are equal
4. -Angles subtended on the circumference by the same arc in the same segment are equal
5. -The angle which an arc subtends at the centre is twice that it subtends at any point on the circumference of the circle
 | B1 B1 B1 B1B1B1B1B1B1  |
|  |  | 10 |
| 24. | (a)

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| x | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| 2x2 | 128 | 98 | 72 | 50 | 32 | 18 | 8 | 2 | 0 | 2 | 8 | 18 | 32 |
| 5x | -4 | -35 | -30 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 |
| -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 | -12 |
| y | 76 | 51 | 30 | 13 | 0 | -9 | -14 | -15 | -12 | -5 | 6 | 21 | 40 |

C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\mauth.jpg  | B1B1B1B1B1B1B1B1B1B1**B1** |
|  | B1 – For half + correct values B1B1 for all values.(b) (i) 2x2 + 5x – 12 = y 2x2 + 5x – 12 = 0 0 = yx = -4 or 1.5  (ii) (2x2 + 5x – 12 = y)3 (3x2 + 7x –3 = 0)2(6x2 +15x – 36 = 3y)-(6x2 + 14x – 6 =0) x-30=3yy=x=-4.6, 2.4 | 10 |