**MATHEMATICS PAPER TWO**

**FORM THREE term 2**

**MARKING SCHEME**

1. 32 x 4 X 0.05 = 32 x 4 X 0.05

 0.00625 0.5

 = 32 x 4 x ~~8~~  1

 ~~50~~

 10

1. 5X2 – y =53

32x : 34y = 30

2x - y = 3 ------ (i)

2x – 4y = 0------ (ii)

From equation (i) y = 2x – 3---- (iii)

Substitute (iii) into (ii)

2x – 4 (2x – 3) = 0 y = 2x -3

2x – 8x + 12 =0 y = 2 (2) -3

 - 6x = -12 y = 4 - 3

 X = 2 y = 1

1. L.s. f =  ~~324~~ = ~~81~~ 1 = 1

 ~~768~~  ~~192~~ 2 2

 A.s.f = ( 1 )2 = 1 = As

 2 4 Al

 Al = 2, 430 x 4

 = 9720 cm2

1. Let Buluma’s salary be x

Food = 3/8x

Electricity + water bolls = 1/5 x 5/8x = 1/8x

Fees – 1/4x

3+ 1 + 1 = 3x + x 2x

8 8 4 8

= 6x = 3x

 8 4

 Invested - 10 x 1 x = 1 x

 100 4 40

 3 x + 1 x = 30 x + x = 31x

 4 40 40 40

 9x = 4500 + 1800

 40

 9x = 6300

 40 1

 X= ksh 6300 x40

 9

 X = 28,000

1. H.P = Deposit = 12,000

 M.I = 15 x 2050 = 30750

 Total = 42,750 -

 Cash price = 36,500

 6,250

Interest rate

6250 x 1~~00~~ = 17.123 for 15 months

36,5~~00~~

Therefore interest per month = 17. 123 = 1.14150/0pm

 15

1. 9y2 – 16x2 = ( 3y)2 - (4x)2

 16x2 - 9y2 (4x2) – (3y) 2

(3y – 4x) (3y + 4x) (4x – 3y) (4x +3y)

 3y – 4x = -1 (~~4x – 3y~~) 1 = - 1 4x – 3y (~~4x – 3y~~) 1

 450 45445

 1

 1

 1 = 4 + 2

 1 – 1 4 + 2 - 2 - 1

 2

= 1 = 1 = 2 + 2 = 2 2

 2 1 2 - 1 2 -1

 2 2 2

= 2 x 2 + 1

 2 – 1 2 + 1

= 2 ( 2 +1)

 2 ( 2 +1) – 1 (2 +1)

1. 5x – 4 = 5 +2 ……….(i)

 – 9 – 3x = x +3 ……... (ii)

From eqn (i) from eqn (ii)

3x =9 - 2-12 = 4 x

X =3 - 3 - = x

Hence -3 = x = 3 Integral values of x = -2, -1, 0, 1, 2, 3

1. V x d3 V kd3

Kd3 V (3.5)3 x k = 14.23

K = 14.23

 3.5x 3.5 x 3.5 K = 0.3319

V = 0.3319 x 4.5 x 4.5 x4.5

1. Area of a circle = IIr2  = 22/7x 8.4 x 8.4

 = 221.76cm2

 Area of a sector EOF = ~~160~~ x IIr2

 ~~360~~ 6

 = 1/6x 221.76 = 36.96cm2

Therefore area of DOEF = 1 x a b sin 60

 2

 = 1 x 8.4 x 8.4 x 0.866

 2

 = 30.55

 Area of the shaded part = 36.96 - 30.55

 = 6.41cm2

 Area unshaded = Area of circle - Area shaded

 = 221.76 – 6.41

 = 215.35cm2

1. June 2009 – 15, 300

June 2010 – 16100

June 2011 – 16,900

June 2012 – 17,700

June 2013 – 18, 500

June 2014 – 19,300

1. P = fh2 + fge

2

Fge = 2P

Fh2

G = 2P F2h2e

1. 3x – y = -5

2x + 4y = 7

 3 – 1 x = -5

 2 4 y 7

 1/4 4 1 3 -1 x = 1 4 1 -5

 -2 4 2 4 y 14 -2 3 7

 X = -13/14

 Y 31/14

 X = -13/14 Y= 31/14

 14.

 P Q

 P

Q

 R

 14cm

 S

 Let RQ be x

 X(x+ 10) = 142

 X2 + 10x – 196 =0

 X = - 10x + -  102 – (4 x 1 x – 196) x = -39.732 = 19.866

 2 x1 2

 X = - 10 +- 100 + 784 x =9.866

 2

 X = -10+- 884

 2

 X = - 10+- 29.732

 2

1. 2 x 3

 0.3746 5085

2 1 + 3 1

 0.06121 5085

2 x 1.6337 + 3(0.0001966)

= 2.3274 + 0.0005898 =2.3273298 =2.3273

1. Log 3 128 = x

3x = 128 X = log 128

 Log 3

1. (a)
2. Taxable income = 13,125 + 300 = 16,125
	* 1. kf = 806.25

 1 - 325 325 x2 = 650

325 – 650 325 x 3 = 975

651 – 975 156.25 x 4 = 6255

 Ksh 2,250

* + 1. Ksh 2,250

 -455

Khs 1, 795 – tax of the relief

* 1. Total deductions
		1. Tax – 1,795.00

Service charge 100.00

Health ins -280.00

 Wcps20/0262.50

 1437.50

(ii) Net income

 16,125.00 -

Ksh 14,37.50

Ksh 14,687.50

 A

 3/5

 M

 2/5 x

 O 4/5

 N 1/5 B

1. AN = AO +ON

–a2 +4/5b2 BM=BO +OM = -b2 + 2/5a2

1. AX = S AN OX = OA + AX

 =OA + S AN =a2 s (-a2 +4/5b2)

=a2 – 5a2 +4/5s b2

= (1- s) a2 + 4/5s b2

1. 1 – s = 2/5t ---------(i)

4/5s = 1-t ----------- (ii)

S = 1 -2/5t ---------- (iii)

Subtracting (iii) into (ii)

4/5(1 – 2/5t) = t -14/5 – 8/25 t = 1-t

20-8/25t = 1-t 12/25t = 1-t

1 12/25t T =25/37

Therefore s= 1- 2/5 x25/27

BX= tBM

1. OX =OB +BX

= b + t BM

= b2 + t(-b2 + 2/5a2)

b2 - t b2 + 2/5t a2

= (1 – t) b2 +2/5 t a2

**Term 2**

**MATHEMATICS PAPER1**

**FORM THREE**

MARKING SCHEME

1. No log

 326.7 2.5142

 0.0589  - 2.7701

 1.2843

 30.6 1.4857

0.2471 -1.3929+

 0.8786

 0.4057

 3

 1.652 0.1352

 = 1.3652

1. 3x – 3sy------------ x7

7x – 3y = 23……….x3

12x – 3sy = 147

21x – 9y = 69

 -26y = 78

 Y= -3

1. 3x -5(-3) = 21

3x + 15 = 21

3x = 6 X = 2

2x2 + 2x – 4 = 0

X2 + 2x+k = 4+k

K = (1/2xb)2 = (1/2 x2) =1 K=1

X2 + 2x + 1 = 5

(x+1) (x +1) = 5

(x +1) 2 = 5

X+1 = + 5

X = -1 + 1.49535 X = -2.49535

X = 0.49535

14 k$ = 9.70

Therefore 4k$ 280,000

KES = 280,000 x 9.70

KES 2,716,000

Spent KES 835, 210

KES 1,880,790

Kf 1215 = 1 S.A rand

1880790 x1

 12.15

= 154,797.53 S.A Rand

1. R (2 + 6 , -1+3)

2 2

(4 ,1 )

G of PQ = Dy = 3—1 = 4 = 1

 Dx 6 – 2 4

Therefore G of line to PQ = -1

Let point s (x, y) pass through R (4, 1)

D = Dy = y-1 = -1

 Dx x-4 1

 Y – 1 = -1 (x-4)

 Y – 1 = - x- 4

 Y = -x +5

1. Area = 1/2a6 sin B

=1/2 x 6 x 10 sin 420

= ½ x 60 x0.69691

 = 20.074cm2

1. Area of sector AOM

= 240 x 3.142 x6 x 6

 360

=13.1964

Therefore area of the shaded portion = area of sector

 = 20.074

 - 13.196

 6.9544cm2

1. s = 14.6 + 0.05 14.55 14.65

t = 5.68 + 5.675 5.675 5.685

Maximum product = 14.65 x 5.685 = 38.28525

Min product = 14.55 x 5.675 = 82.57125

Working product = 14.6 x 5.68 = 82.928

Absolute error = max p – min p = 83.28525 – 82.5712

 2 2

= 0.357025

 Therefore 0/0 error = 0.35702 x 100

 82.928

 = 0.43050/0

1. Log10 (3x +4) = log10 (3x – x) + log10

Log10 (3x +4) = log10 10(3 – x)

3x – 4 = 30 – 10x

13x = 36

X = 2

1. Spouse : daughter : son

 1 : 2 : 3

Son = 3/6 x 1,865,280 = 923, 640

Spouse = 1/6 x 1,865, 280 = 310, 880 = 155440

 2

Therefore son got = 932, 640+

 155, 440

 Ksh 1,088,080

1. In 1 hr --------- boy = 1 = 1 : 7/2 = 2/7

 31/2

Girl = 1/6

Both 2/7 +1/6 = 12 +7 = 19

 42 42

If 19/42 = 1 hr

1= 1 x 1: 19/42

= 42/19 = 21/19 hrs

= 2 hrs 13 min

 V

 20

 14

 U

 10

W

11

 h

 350  540

 P L 3m

Tan 540 = h/3

H = 3 tan 540

H = 3 x 1.37638

H = 4.129m

1. Largest size is WUV

A = ½ x 14 x10 sin 0 = s (s – o) (s – b) (s – c)

= 70 sin 0 = 22(22- 10) (22 – 14) ( 220-20)

= 70 sin 0 = 20 x 12 x 8 x 2

Sin0 = 3840 = 0.8853

 70

0 =62.2880

0 = 62.290

1. ( on a graph paper)
2. 7 + 2 x ( 5+ 2)

5 - 2 ( 5 + 2)

= 7 ( 5 + 2 )+ 2 ( 5 + 2)

 5 (5 + 2 ) - 2 (5+ 2)

 = 35 + 7 2 + 5 2 + 4

 25 + 5 2 – 5 2 - 4

 = 35 + 12 2 +2 = 37 +12 2

 25-2 24

37/24 +1/2 2

1. BA2 = 4 - 5 = - 1

 5 -4 9

 BA = (-1)2  + (9)2

 = 82 = 9.0554

1. BODMAS

¾ + 12/7 : 4/7 X 7/3 = ¾ + ~~12~~/7 X 3/4

 45/56 X 2/3

 15/28

¾ + 9/7 = 21+36

 15/28 15/28

57/28 : 15/28

57/15 X 28/15

= 57/15 = 312/15

= 3 4/5

1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Speed | Mid point (x) | Frequency( No. of vehicle) | fx | 1. C.f
 |
| 40 – 44 | 42 | 28 | 1176 | 28 |
| 45 – 49 | 47 | 40 | 1880 | 68 |
| 50 – 54 | 52 | 65 | 3380 | 133 |
| 55 – 59 | 57 | 47 | 2679 | 180 |
| 60 – 64 | 62 | 38 | 2356 | 218 |
| 65 – 69 | 67 | 32 | 2144 | 250 |
|  |  | Ef= 250 | Efx =13615 |  |

* + Mean (-x) = Efx = 13615 = 54.46

Ef 250

 F

 E

 D

 A B C

1. BEF0 = 640 ( interior alternate angles are the same)
2. FBE0 = 180 - 640  = 1160 = 580

 2 2 (sin of s of add up to 1800)

1. DBC = 580 – 360 (Interior alternate s are equal hence CBE = BFE =580)
	* + 1. = 220
2. BDE = 1800 – 580 (Opposite s of a cyclic gradrilational add up to 1800)

 = 1220

1. BED = 1800 – ( 1220 + 360)

= 1800 – 1580

= 220 ( Angles of a triangle add upto 1800)

1. Diagram

 18cm

 h

1. Vol. = 1/3 IIr2 h

(Small cone) = 1/3 x 22/7 x12 x 12 x h

= 1/3 x 22/7 x 12 x12 x 36

= 5430.857cm3

1. Vol. (original cone ) = 1/3 IIr2 h

 6

=1 x 22x18 x 18 x ~~18~~ x 54

 ~~3~~ 7

 1

= 184, 957. 71cm3

1. Volume of frustum

= 184, 957.71

 5,430.86-

 179, 256.85cm3

1. 1000 cm3 = 1 liter

Therefore 179, 526.85 = 179, 526.85 x 1

1000

= 179.527 liters