**2020 FORM 4 TERM 1 OPENER EXAMS**

**MATHEMATICS PAPER 1 MARKING SCHEME.**

No. 1 -8 -5 x -8 +6

-8 + 40 +6

=38 m1

-3 – 8 2 x 4

-3 – 4x 4 = 19

=

=-2

NO. 2

- = X =

X = - =

X = 2

NO.3

Let mother’s years be x and son’s be y now:

X+14 = 2(y+14)………………………..i

X + 14 = 2y + 28

X – 2y = 14 ………………………………ii

(x-4)+ (y-4)=30

X + y = 38………………………………….iii

Iii – ii x+y = 38

+ -x + 2 = -14

3y = 24 x=30

At son’s birth:mothers age = 30-8 =22 years

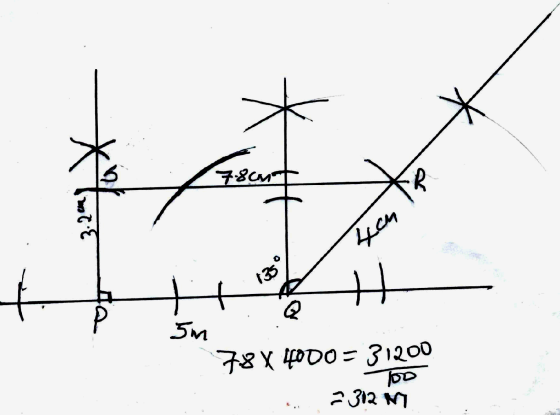
No. 4

105000 x 9.74

= sh 1,022,700

=51100 rands

No. 5



No 6

g: c: s = 8 : 20 : 15

x 15

= 43 Animals

No. 7

100% = x

90% = 1440

=1600

120% =1600

100% =x

=1333.3

1600 – 1333.3 = 266.70

No. 8

– 4.1512

4.1512 = 17.231

= =

=0.2737 = 27.37

27.37 – 17.231 = 10.139

No. 9

No. 10

Sin = cos 2

+60 +2 = 90

= 30

= 100

= tan 700

= 2.748 (from tables)

=2.748 (from calculator)

4 s. f. 2.7475

No. 11

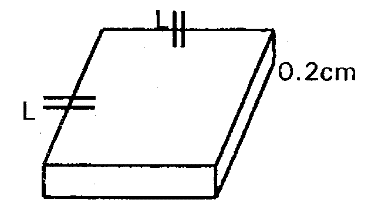
=

a.s.f. =

Area PST = = 149

Area QRST = 336 -149 = 186

No 12

Volume = 

= = 125

L x L x 0.2 cm = 125

L2 = = 625

L = = 25 cm

No. 13

2 x 3.142 x 36 = 226.224

3.142 x 610.82 = 204.0

Total 430.224

No. 14

9-3x 2x + 2

x

+ 1-2x-1

X -

x 1

No.15

3t+2a=9000..... (i)

4t+a =9500...... (ii)

Multiply (ii)x2

8t+2a =19000-

3t+2a =9000

5t = 10000

t = 2000

substitutingin (i) above

3 x 2000 + 2a = 9000

a =

a = 1500

t = 2000

2 x 2000 + 5 x 1500

= 11500

No.16

a) = + – 2 x 7.6 x 4.8 cos 80

= 57.76 + 23.04 – 12.67

= 68.13

R = 68.13

= 8.3

b) =

SinB = 0.5727

B = sin -10.5727

= 34.90

SECTION II

No 17.

a) 2y – 3x = 6

3y + x = 20

2y - 3x = 6

9y + 3x = 60

11y = 60

Y= 6

X = 20 -18

= 2

Co-ordinates of A are (2,6)

b) L2: 3y = -x + 20

y = - + 20

Gradient of perpendicular = 3

=3

Y= 3- 6 + 6

Y = 3

c) Gradient of L4= gradient of L1

=

=

2y -6 = 3 + 3

2y - 3 = 9

When = 0 y = 4.5

When y = 0 x = -3

No. 18



No. 19

a) x + 2 + 12 + 7 +15 + = 40

= 4

b) Mean of = = 32.1875

c)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CB | 4.5-14.5 | 14.5-29.5 | 29.5-34.5 | 34.5-44.5 | 44.5-49.5 |
| Fd | 0.2 | 0.8 | 1.4 | 1.5 | 0.8 |
| Fx | 19 | 264 | 224 | 595.5 | 188 |

d) total area A = 10 x 0.2 = 2

B= 15 x 0.8 = 12 2 + 12 + 7 + 15 + 4

C = 1.4 x y = 6 = = 20

D = 1.5 x 10 = 15

E = 0.8 x 5 = 4

Point to draw the lie is 29.5 + =30.36

No.20

a) =+ – 2bc cos A

= 102 + 82 - cos A

49=164- 60 cos A

-116 =160 cos A

Cos A =

Cos A = 0.725

Cos1 0.725 = 43.53115

BAC = 43.53

b) = 2R

= 2R

R =5.082cm

(c) Sin 43.53 =

r = 5.082 cm

Area of OCB = ab sin

= x 5.082 sin 87.06

= 12.896cm2

Area of sector ACB

=

= x x 5.082 = 19.630

Shaded region

(19.630 — 12.896) = 6.734 cm2

No. 21

1. 15m/s
2. Maximum speed

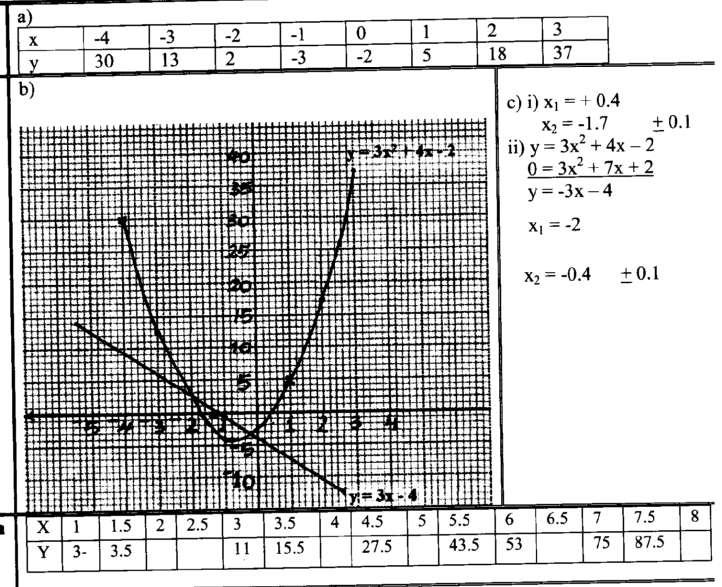
1. (i) =

= 1.5m/s2

(ii) = = 1.5m/s2

=

=26.25 m/s

No.22

No. 23



a) i) Volume

Ratio =

2114(22.5 +

21= 14(22.5 + x)

21x - 14x = 315

x = 45cm

Volume of whole cone

= x x 21 x 21 x 67.5 =31185 cm3

Volume of small cone

= = x x14 x 14 x 45 = 9240 cm3

Volume of frustum

31185- 9240 = 21 945 cm3

ii) Mass of frustum

Mass=21945x=65835g

Mass in kg= = 65835kg

b) 20% of 65.835kg = 13.167 kg

65.835 - 13.167 = 52.668 kg

Volume of material remaining =

= 17556cm3

Length of cube = = 25.99 cm

No.24

(a) (i) 6400 + 1750 x 20

= Ksh4 400

(ii) 41 400— 36000=Ksh 5400

(b) 36000 = 41 400

(1+) = 1.15

(1 + ) =

= 0.087473554

r= 8.7473554

(c) 36000 x 1.0872

= 42536.484

42536.484 - 36000

=6536.484 Ksh 6536