ST. JOSEPH OF NAZARETH HIGH SCHOOL

UGANDA ADVANCED CERTIFICATE OF EDUCATION

INTERNAL MOCK EXAMINATION 2017

SUBSIDIARY MATHEMATICS S475/1

PAPER 1

TIME: 2HOURS 40 MINUTES

INSTRUCTIONS TO CANDIDATES:

- Answer **all** the **eight** questions in section **A** and any **four** questions from section **B**.

- Any additional question (s) answered will not be marked.

- Each question in Section **A** carries **5** marks while each question in Section **B** carries **15** marks.

- All working must be shown clearly.

- Begin each answer on a fresh page.

- Graph paper is provided.

- Silent non – programmable scientific calculators and mathematical tables with a list of formulae may be used.

- Take **g = 9.8 ms⁻²**

SECTION A (40 MARKS)
Answer **all** the questions in this Section.

1. Express $\sqrt{\dfrac{5^{2015} - 25^{1007}}{25^{1007} + 5^{2014}}}$ in form of $\sqrt{b}$ and state the value of b. (05 marks)

2. Find the number of even numbers containing one or more digits that can be formed from digits; 2,3,4,5 and 6 if no digit is repeated. (05 marks)

3. If the roots of the equation $2x^2 - 7x + 1 = 0$ are $\propto$ and β; find the quadratic equation whose roots are $\dfrac{1}{\propto^2}$ and $\dfrac{1}{\beta^2}$ (05 marks)

4. The table below shows the cost per kg of some items commonly used by a certain family.

Item	Bread	Rice	Beans	Millet	Salt
Cost per kg	2500	2800	2000	3000	500

Using the price of **beans** as the **base price**, calculate the **cost of living** index and comment on your results. (05 marks)

5. When the polynomial $p(x) = 6x^3 + ax^2 + bx + 4$ is divided by $x + 1$; the remainder is -15 and when divided by $x - 3$; the remainder is 49. Find the values of a and **b**. (05 marks)

6. The yields per hectare of maize and the rains received on various farms in a district are given in the table below.

Farms	A	B	C	D	E	F	G	H
Rain (in mm)(x)	1050	642	1033	1139	570	873	1066	1250
Yield per hectare (in thousand kg's)(y)	7.6	4.5	5.5	4.0	5.2	6.0	7.1	5.9

   (i) Calculate the rank correlation coefficient between x and y.
   (ii) Comment on the results

(05 marks)

7. Given that vectors; $a = -2\hat{\imath} + 4\hat{\jmath}$; $b = -5\hat{\imath} + 10\hat{\jmath}$ and $c = -9\hat{\imath} - 12\hat{\jmath}$. Find the angle between vector $(a + b)$ and vector $\left(\dfrac{-1}{3}c\right)$. (05 marks)

8. Two particles of masses $3kg$ and $5kg$ are connected by a light inextensible string passing over a smooth pulley. Find the common acceleration and tension in the string. (05 marks)

SECTION B (60 MARKS)

9. (a) The diagram below shows three forces; "F" N; $12N$ and $16N$ acting on a particle. If the forces are in equilibrium; find the values of;
   (i)   Force F
   (ii)   angle θ
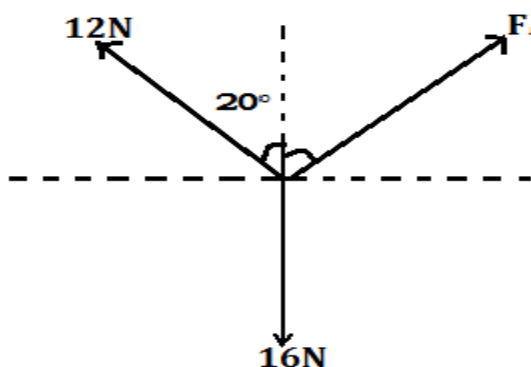
   (07 marks)

   (b) In a rectangle $PQRS$; $PQ = 8m$ and $PR = 17m$. Forces of magnitudes;
   $6N, 16N, 5N, 14N$ and $10N$ act in the directions of the letters; $PQSR, RQ, PS$
   and QS respectively. Taking PQ as the horizontal; find the magnitude and direction of the resultant force. (08 marks)

10. (a) Given that $2\sin(A - B) = \sin(A + B)$;
   (i)   Show that $\tan A = 3\tan B$
   (ii)   Determine the possible values of A in (i) above between $-180°$ and 180 if $B = 30°$
            (06 marks)

   (b) Solve the equation $2\sin 2x - \cos 2x = 1$; for $0° \leq x \leq 360°$.   (06 marks)

   (c) Without using tables or calculator show that; $\cos 75° = \frac{\sqrt{2}(\sqrt{3}-1)}{4}$ (03 marks)

11. A continuous random variable x has a probability density function given as;

$$f(x) = \begin{cases} kx & ; \quad 0 \le x \le 1 \\ \dfrac{kx}{2} & ; \quad 1 \le x \le 2 \\ 0 & ; \quad otherwise \end{cases}$$

Find the;

(a) Value of k (05 marks)

(b) Median of x (05 marks)

(c) $p\left(\dfrac{1}{2} \le x \le \dfrac{3}{2}\right)$ (05 marks)

12. The gradient of a curve at point $A(x, y)$ is $4x + 3$. If point $B(3, 25)$ lies on the curve. (05 marks)

(a) Find the equation of the curve. (04 marks)

(b) Determine the coordinates and nature of its turning points hence sketch the curve. (07 marks)

(c) Find the area enclosed by the curve and the $x - axis$. (04 marks)

13. A salt factory sells salt in bags of mean weight $50kg$ and variance $6.25kg$. Given that the weights of the bags are normally distributed; find the;

(a) Probability that the weight of any bag selected at random lies between $51.5kg$ and $53k$g. (04 marks)

(b) Percentage of bags whose weights;

(i) exceeds $54kg$

(ii) lies between $46.58kg$ and $55.58kg$.

(07 marks)

(c) Calculate the number of bags that will be rejected out of $1000\ bags$ purchased for weighing below $45kg$. (04 marks)

14. The weights of fish in kg trapped in river Limpopo are given below;

5.1	4.7	6.2	4.4	6.5	4.1	6.4	5.7	11.2	6.5
6.1	4.8	9.2	5.9	8.1	5.1	4.9	7.9	8.4	1.1
7.1	5.1	6.3	7.8	7.2	0.5	8.3	5.1	3.6	8.9
6.6	4.2	12.1	8.1	10.2	9.1	6.5	8.3	9.0	9.2
8.4	7.3	7.5	6.1	4.9	8.0	7.8	5.8	4.3	2.8

(a) Make a grouped frequency distribution table of these weights starting with a class of $0.0 - 1.9$

(b) State the;

(i) Class interval

    (ii)   Modal class

(c) Calculate the mean weight

(d) Draw an "**O**" give and use it to estimate the;

    (i) 70th percentile

    (ii)   quartile deviation

<div align="right">(15 marks)</div>

<div align="center">

~END~
SUCCESS IS A STRUGGLE!

</div>

①

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EXAMINATIONS ANSWER BOOKLET

Student's Name ..... *INTERNAL MOCK EXAMS, 2017*

Class ..... *S:6.*   Index No. *S.475/1*

Signature: .....   Subject ..... *SUB - MATHS*

FOR OFFICIAL USE ONLY

Qtn.														Total
Mks														
Exmnr														

NO. 1

$$\sqrt{\frac{5^{2015} - 25^{1007}}{25^{1007} + 5^{2014}}}$$

$$\sqrt{\frac{5^{2015} - 5^{2014}}{5^{2014} + 5^{2014}}} \quad m_1 \qquad \boxed{2 \times 1007 = 5^{2014}}$$

$$\sqrt{\frac{5^{2014}(5 - 1)}{5^{2014}(1 + 1)}} \quad m_1 \qquad \boxed{05}$$

$$\sqrt{\frac{4}{2}} \quad m_1$$

$$\sqrt{2} \quad r$$

$$\therefore \quad b = 2 \quad r$$

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EXAMINATIONS ANSWER BOOKLET

Student's Name ....

Class ....   Index No. ....

Signature: ....   Subject ....

FOR OFFICIAL USE ONLY $Pg-2$

Qtn.										Total
Mks										
Exmnr										

NO 2

2, 3, 4, 5 & 6

1 digit   3   3

2 digits   4   3   4×3   =   12 ✗

8 digits   4   3   3   4×3×2 = 36 ✗

4 digits   4   3   2   3   4×3×2×3 = 72 ✗

5 digits   4   3   2   1   3   4×3×2×1×3 = 72 ✗

Total number of ways

3 + 12 + 36 + 72 + 72

195 ways ✗   05

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Signature: ....   Subject .... Pg. ③

NO 3

$2x^2 - 7x + 1 = 0$

$x^2 - \frac{7}{2}x + \frac{1}{2} = 0$

$\alpha + \beta = \frac{7}{2} \qquad \alpha\beta = \frac{1}{2}$

Sum of roots $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$

$$\frac{\alpha^2 + \beta^2}{\alpha^2 \beta^2} = \frac{(\alpha+\beta)^2 - 2\alpha\beta}{(\alpha\beta)^2}$$

$$= \frac{(\frac{7}{2})^2 - 2 \times \frac{1}{2}}{(\frac{1}{2})^2}$$

$$= \frac{\frac{49}{4} - 1}{\frac{1}{4}}$$

$$= \frac{45}{4} \times \frac{4}{1}$$

$$45$$

product $\frac{1}{\alpha^2} \cdot \frac{1}{\beta^2} = \frac{1}{(\alpha\beta)^2}$ ⑤

$$= \frac{1}{(\frac{1}{2})^2} = \frac{1}{\frac{1}{4}}$$

$$= 4$$

$x^2 - (sum\ of\ roots)x + product = 0$

$x^2 - 45x + 4 = 0$

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pg ④

NO 4

$$CO \cdot L = \frac{\sum \left(\frac{P_1}{PO}\right) \times 100}{n}$$

$$= \frac{\left(\frac{2500}{2000} + \frac{2800}{2000} + \frac{2000}{2000} + \frac{3000}{2000} + \frac{500}{2000}\right) \times 100}{5}$$

$$= \frac{1 \cdot 25 + 1 \cdot 4 + 1 + 1 \cdot 5 + 0 \cdot 25}{5} \times 100$$

$$= \frac{5 \cdot 4}{5} \times 100$$

$$= 108$$

05

The price increased by 8%

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Pg. (5)

NO5

$P(x) = 6x^3 + ax^2 + bx + 4$

x+1. $R = -15$

x+1 = 0

x = -1

$P(-1) = 6(-1)^3 + a(-1)^2 + b(-1) + 4 = -15$

$= -6 + a - b + 4 = -15$

$a - b = -15 - 4 + 6$

$a - b = -13$ ——— ① ✓

x - 3 = 0

x = 3 $R = 49$

$P(3) = 6(3)^3 + a(3)^2 + b(3) + 4 = 49$

$162 + 9a + 3b + 4 = 49$

$9a + 3b = 49 - 4 - 162$

$9a + 3b = -117$ ——— ② ✓

Solving ① and ②

9 | a - b = -13
  | 9a + 3b = -117

$9a - 9b = -117$

$9a + 3b = -117$

$-12b = 0$ 05

$b = 0$

$a - b = -13$

$a - 0 = -13$

$a = -13$

Pg.6

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Signature: .... Subject .... Pg 6

NO 6

x	y	Rx	Ry	d	d²
1050	7.6	4	1	3	9
642	4.5	7	7	0	0
1033	5.5	5	5	0	0
1139	4.0	2	8	-6	36
570	5.2	8	6	2	4
873	6.0	6	3	3	9
1066	7.1	3	2	1	1
1250	5.9	1	4	-3	9

$\Sigma d^2 = 68$

$$f = 1 - \frac{6 \Sigma d^2}{n(n^2-1)}$$

$$= 1 - \frac{6 \times 68}{8(8^2-1)} \qquad \boxed{05}$$

$$= 1 - \frac{408}{504}$$

$$= 0.1905$$

There is very low positive linear correlation between Rain and yield for hectare

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Student's Name .... Pg. ⑦ ....

Class .... Index No. ....

Signature: .... Subject ....

$$NO \quad 7$$

$$a = -2i + 4j \qquad b = -5i + 10j \qquad c = -9i - 12j$$

$$(a+b) = (-2i+4j) + (-5i+10j)$$

$$= -7i + 14j$$

$$\left(-\tfrac{1}{3}c\right) = -\tfrac{1}{3}(-9i - 12j)$$

$$= 3i + 4j$$

$$|-7i + 14j| = \sqrt{(-7)^2 + 14^2}$$

$$= \sqrt{245}$$

$$|3i + 4j| = \sqrt{3^2 + 4^2}$$

$$= \sqrt{9+16}$$

$$= \sqrt{25} = 5$$

$$(-7i + 14j) \cdot (3i + 4j) = |A||B| \cos\theta$$

$$(-7 \times 3) + (4 \times 14) = 5\sqrt{245} \cos\theta$$

$$-21 + 56 = 5\sqrt{245} \cos\theta$$

$$35 = 5\sqrt{245} \cos\theta$$

$$\cos\theta = \frac{35}{5\sqrt{245}}$$

$$\theta = \cos^{-1}\left(\frac{35}{5\sqrt{245}}\right)$$

$$\theta = 63.4°$$
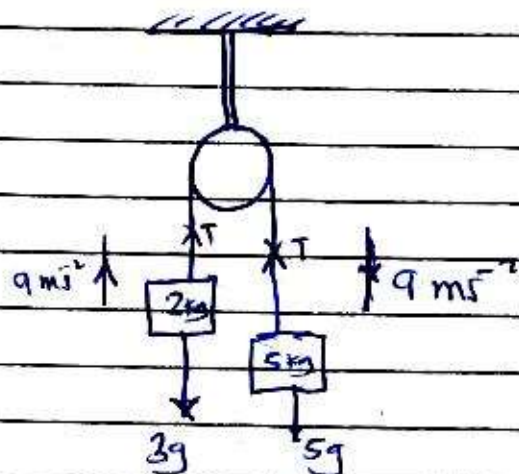
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Signature: .... Subject .... Pg⑤

No 8

$5g - T = 5a$ ———①

$T - 3g = 3a$ ———②

in ① & ②

$5g - \cancel{T} + \cancel{T} - 3g = 5a + 3a$

$5g - 3g = 8a$

$\dfrac{2g}{8} = \dfrac{8a}{8}$

$a = 0.25g \, ms^{-2}$ or $2.45 \, ms^{-2}$

$T = 3a + 3g$

$T = 3 \times 0.25g + 3g$

$T = 3.75g \, N$ or $36.75 N$

(05)

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Class .... Index No. ....

Signature: .... Subject .... B ⑨

NO 9
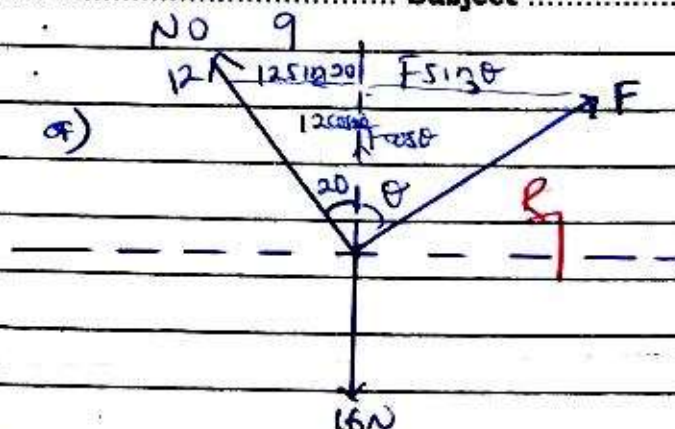
Equating vertical forces

$$F\cos\theta + 12\cos 20 = 16 \quad —①$$

$$F\cos\theta = 16 - 12\cos 20$$

Equating horizontal forces

$$12\sin 20 = F\sin\theta \quad —②$$

$$\frac{F\sin\theta}{F\cos\theta} = \frac{12\sin 20}{16 - 12\cos 20}$$

$$\tan\theta = 0.86886$$

$$\theta = \tan^{-1}(0.86886)$$

$$\theta = 41°$$

$$F\sin\theta = 12\sin 20$$

$$\frac{F\sin 41}{\sin 41} = \frac{12\sin 20}{\sin 41}$$

$$F = 6.2559N$$

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Signature: .... Subject ....

Pg - ⑩

b)
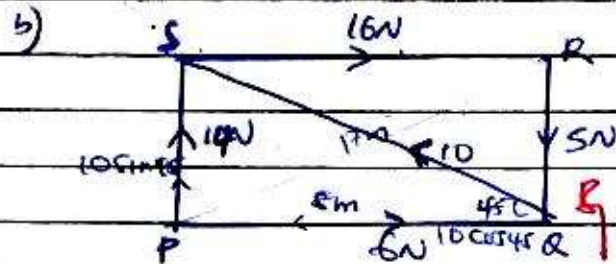
Vertical forces

$10\sin 45 + 14 - 5$ ↱

$16.0711 N$ ↲

Horizontal forces

$16 + 6 - 10\cos 45$ ↱
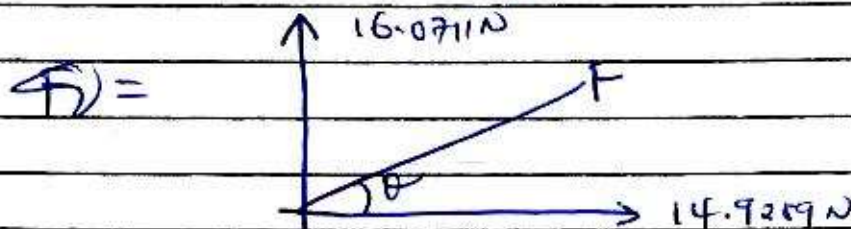
$14.9289 N$ ↲

$F = \sqrt{(16.0711)^2 + (14.929)^2}$ ↱

$F = \sqrt{481.1523}$

15/15

$F = 21.935 N$ ↥

$\theta = \tan^{-1}\left(\dfrac{16.0711}{14.9289}\right)$

$= 47.1° $ ↥

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NO 10

q) $2\sin(A-B) = \sin(A+B)$

$2[\sin A \cos B - \cos A \sin B] = \sin A \cos B + \cos A \sin B$

$2\sin A \cos B - 2\cos A \sin B = \sin A \cos B + \cos A \sin B$

$2\sin A \cos B - \sin A \cos B = \cos A \sin B + 2\cos A \sin B$

$$\frac{\sin A \cos B}{\cos A} = \frac{3\cos A \sin B}{\cos A}$$

$$\frac{\tan A \cos B}{\cos B} = \frac{3\sin B}{\cos B}$$

$\tan A = 3\tan B \qquad B = 30$

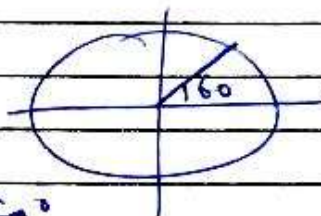$\tan A = 3\tan 30$

$\tan A = 1.73205$

$A = \tan^{-1}(1.73205)$

$A = 60°$

$360 - 60°$

$A = -60°, \ 60°$

Q·10

b) $2 \sin 2x - \cos 2x \neq 1$

$4 \sin x \cos x - (1 - 2\sin^2 x) = 1$

$4 \sin x \cos x - 1 + 2\sin^2 x = 1$

$4 \sin x \cos x + 2 \sin^2 x = 2$

~~$2 \sin x \cos x + \sin^2 x = 1$~~

~~$2 \sin x (\cos x + \sin x) = 1$~~

$2 \sin x \cos x + \sin^2 x = 1$

$\sin x (2\cos x + \sin x) = 1$
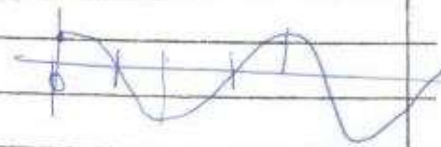
$4 \sin x \cos x - (2\cos^2 x - 1) = 1$ m✓

$4 \sin x \cos x - 2\cos^2 x + 1 = 1$

$4 \sin x \cos x - 2\cos^2 x = 0$ m✓

$\cos x (4 \sin x - \cos x) = 0$ m✓

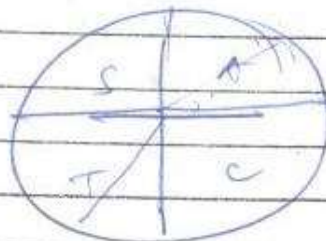either $\cos x = 0$

$x = \cos^{-1} 0$

$x = 90°, 270°$ ✓

$4 \sin x - \cos x = 0$

$\dfrac{4 \sin x}{\cos x} = \dfrac{\cos x}{\cos x}$ m✓

$4 \tan x = 1$

$\tan x = \frac{1}{4}$

$x = \tan^{-1}(\frac{1}{4})$

$x = 14°, 194°$

$x = \{14°, 90°, 194°, 270°\}$ A✓

atleast three angles

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Pg -⑬

Q·10.

(c)   cos75

$$\cos 75 = \cos(45 + 30)$$

$$= \cos 45 \cos 30 - \sin 45 \sin 30$$

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{3}}{2} - \frac{1}{\sqrt{2}} \cdot \frac{1}{2}$$

$$\frac{\sqrt{3}}{2\sqrt{2}} - \frac{1}{2\sqrt{2}}$$

$$\frac{\sqrt{3} - 1}{2\sqrt{2}}$$

$$\frac{(\sqrt{3} - 1)\sqrt{2}}{2\sqrt{2} \times \sqrt{2}}$$

$$\frac{\sqrt{2}(\sqrt{3} - 1)}{2 \times 2}$$

15/15

$$\frac{\sqrt{2}(\sqrt{3} - 1)}{4}$$

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Class ....   Index No. ....

Signature: .... Subject ....

NO 11   Pg -⑭

$$f(x) = \begin{cases} Kx & 0 \le x \le 1 \\ \dfrac{Kx}{2} & 1 \le x \le 2 \\ 0 & \text{otherwise} \end{cases}$$

$$K\int_0^1 x\,dx + \frac{K}{2}\int_1^2 x\,dx = 1$$

$$k\left(\frac{x^2}{4}\right)\Big|^2$$

$$K\left[\frac{x^2}{2}\right]_0^1 + \frac{K}{2}\left[\frac{x^2}{2}\right]_1^2 = 1$$

$$k\left(\frac{4}{4}\right)$$

$$K\left[\frac{1}{2} - 0\right] + \frac{K}{2}\left[\frac{4}{2} - \frac{1}{2}\right] = 1$$

$$\frac{K}{2} + \frac{K}{2}\left[\frac{3}{2}\right] = 1$$

$$\frac{K}{2} + \frac{3K}{4} = 1 \times 4$$

$$2K + 3K = 4$$

$$\frac{5K}{5} = \frac{4}{5}$$

$$K = \frac{4}{5}$$

$$\text{Median} = \int_0^m Kx\,dx = 0.5$$

$$K\left[\frac{x^2}{2}\right]_0^m = 0.5$$

$$K\left[\frac{m^2}{2} - 0\right] = \frac{1}{2}$$

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Signature: .... Subject ....

Pg ⑮

$$\frac{4}{5} \frac{m^2}{2} = \frac{1}{2}$$

$$\frac{4m^2}{10} = \frac{1}{2} \times 5$$

$$\frac{4m^2}{4} = \frac{5}{4}$$

$$\sqrt{m^2} = \sqrt{\frac{5}{4}}$$

$$m = \pm 1.1180$$

$$m = 1.1180$$

c) $P(\frac{1}{2} \leq x \leq \frac{3}{2})$

$$\int_{0.5}^{1} kx\,dx + \int_{1}^{1.5} \frac{kx}{2}\,dx$$

$$\frac{4}{5}\left[\frac{x^2}{2}\right]_{0.5}^{1} + \frac{4}{5}\left[\frac{x^2}{4}\right]_{1}^{1.5}$$

$$\frac{4}{5}\left[\frac{1}{2} - \frac{1}{8}\right] + \frac{4}{5}\left[\frac{9}{16} - \frac{1}{4}\right]$$

$$\frac{4}{5} \times \frac{3}{8} + \frac{4}{5} \times \frac{5}{16}$$

⑮/15

$$\frac{12}{40} + \frac{20}{80}$$

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NO 12

$$\frac{dy}{dx} = 4x+3 \quad (3,25)$$

$$\int dy = \int (4x+3) \, dx$$

$$y = \int (4x+3) \, dx$$

$$y = \frac{4x^2}{2} + 3x + c$$

$$y = 2x^2 + 3x + c \quad (3,25)$$

$$25 = 2 \times 3^2 + 3 \times 3 + c$$

$$25 = 18 + 9 + c$$

$$c = 25 - 27$$

$$c = -2$$

$$y = 2x^2 + 3x - 2$$

At turning point $\frac{dy}{dx} = 0$

$$y = 2x^2 + 3x - 2$$

$$\frac{dy}{dx} = 4x + 3 = 0$$

$$\frac{4x}{4} = \frac{-3}{4}$$

$$x = -3/4$$

$$y = 2\left(\frac{-3}{4}\right)^2 + 3\left(\frac{-3}{4}\right) - 2$$

$$y = \frac{-25}{8} \qquad \left(\frac{-3}{4}, \frac{-25}{8}\right)$$

Nature of turning point

$$\frac{dy}{dx} = 4x + 3$$

$$\frac{d^2y}{dx^2} = 4$$

15/15

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Q.12   Pg. 17

Intercepts :

x-intercept $y=0$

$y = 2x^2 + 3x - 2$

$0 = 2x^2 + 3x - 2$

$2x^2 + 3x - 2 = 0$

$(x+2)(x-\frac{1}{2}) = 0$

Either $x+2=0$ or $x-\frac{1}{2}=0$

$x = -2$ or $x = \frac{1}{2}$

$(-2, 0)$ $(\frac{1}{2}, 0)$

y-intercept $x = 0$

$y = 2x^2 + 3x - 2$

$y = 2 \times 0 + 3 \times 0 - 2$

$y = -2$ $(0, -2)$

$2(\frac{-7}{4})^2 + 3(\frac{-7}{4}) - 2$
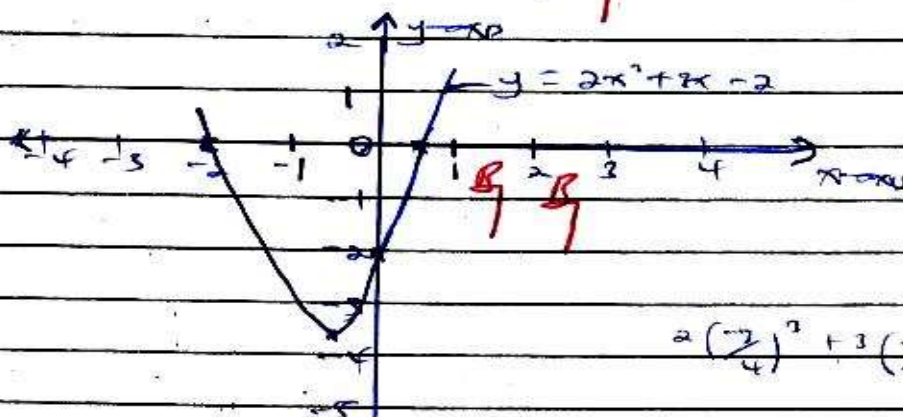
Area $= \int_{-2}^{1} (2x^2 + 3x - 2)\, dx$

$= \left[\frac{2x^3}{3} + \frac{3x^2}{2} - 2 \right]_{-2}^{1}$

$= -\frac{7}{3} - \frac{1}{6} = -\frac{3}{2}$

Area $= 1.5$

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NO 13

$N = 50$ $s.d = \sqrt{6.25} = 2.5$

$z = \dfrac{x - N}{8}$ $x_1 = 51.5$ $x_2 = 53$

$z_1 = \dfrac{x - N}{8}$ $z_2 = \dfrac{x - \mu}{8}$

$= \dfrac{53 - 50}{2.5}$

$= \dfrac{51.5 - 50}{25}$

$= \dfrac{0.12}{1.2}$

$= 0.6$

$= P(0 < z < 0.6) + P(0 < 3 < 1.2)$

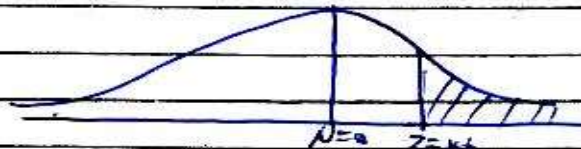$\begin{array}{cc} 0.2257 + & 0.3849 \\ 0.2881 - & 0.0478 \\ & 0.1592 \end{array}$

0.2403

$b_1)$ $P(x > 54)$
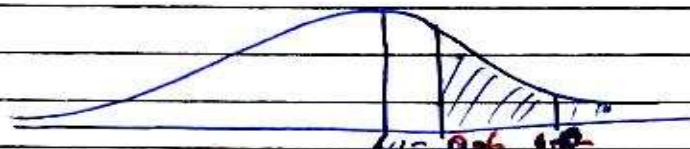
$\therefore z = \dfrac{x - N}{8} = \dfrac{54 - 50}{2.5}$

$= 1.6$

$P(x > 54) = P(z > 1.6)$

$0.5 - P(0 < z < 1.6)$

$0.5 - 0.4452$

0.0548

0.0548×100

$= 5.48 \%$

ST.JOSEPH OF NAZARETH HIGH SCHOOL

KAVULE - MPIGI

Student's Name ....

Class ....   Index No. ....

Signature: ....   Subject ....

Pg - ⑲

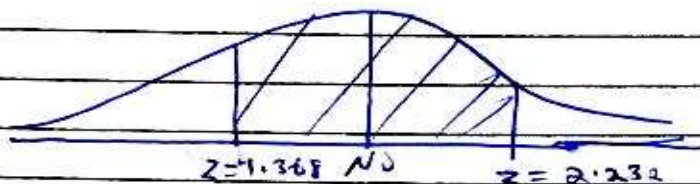ii) $\quad P(46.58 < x < 55.58)$

$$Z = \frac{x - N}{s}$$

$$= \frac{46.58 - 50}{2.5} < Z < \frac{55.58 - 50}{2.5}$$

$$= -1.368 < Z < 2.232$$

$$P(-1.368 < Z < 2.232)$$

$Z = -1.368$ N₀ $Z = 2.232$

$$P(-1.368 < Z < 0) + P(0 < Z < 2.232)$$

$$P(0 < Z < 1.368) + P(0 < Z < 2.232)$$

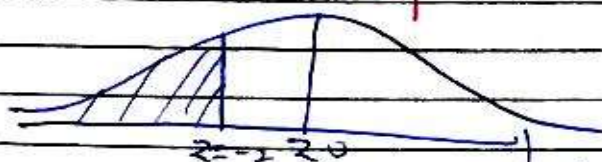$$0.4144 + 0.4872$$

$$0.1600 + 0.0333$$

$$0.1933 \qquad 0.9016$$

$$0.1933 \times 100 \qquad 0.9016 \times 100$$

$$= 19.33\% \qquad 90.16\%$$

c) $\quad P(x < 45)$

$$P\left(Z < \frac{45 - 50}{2.5}\right)$$

$$P(Z < -2)$$

$Z = -2$ 0

$$0.5 - P(0 < Z < 2)$$

$$0.5 - 0.4772$$

$$0.0228$$

$$0.0228 \times 1000$$

$$22.8 \text{ kgs}$$

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No-14   Pg 20

Class	f	x	fx	CB	cf
0.0 - 1.9	2	0.95	1.90	-0.05 - 1.95	2
2.0 - 3.9	2	2.95	5.95	1.95 - 3.95	4
4.0 - 5.9	15	4.95	74.25	3.95 - 5.95	19
6.0 - 7.9	16	6.95	111.2	5.95 - 7.95	35
8.0 - 9.9	12	8.95	107.4	7.95 - 9.95	47
10.0 - 11.9	2	10.95	21.90	9.45 - 11.95	49
12.0 - 13.9	1	12.95	12.950	11.95 - 13.95	50
	$\sum f = 50$		$\sum fx = 335.55$		

b)   i)   Class interval   =   2

  ii)   Modal class   =   6.0 - 7.9

c)   mean = $\frac{\sum fx}{\sum f}$

  = $\frac{335.55}{50}$

  = 6.711 kg

Quartile deviation

$\left(\frac{Q_3 + Q_1}{2}\right)$

$Q_3 = \frac{3}{4} \times 50$ $Q_1 = \frac{1}{4} \times 50$

37.5   12.5

8.35   5.25

$\frac{8.35 + 5.25}{2}$

6.8 kg

pg. 21

An ogive showing kg
of Tilisha canyqte

70th percentile

$$\frac{70}{100} \times 50 = 35$$

7·95 kg

Cumulative frequency

Upper class boundaries