E-LEARN UGANDA

"KNOWLEDGE FOR ALL"

PRE-PLE GUIDE

MATHS

2023

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KAMPALA, UGANDA

SECTION A: 40 MARKS

*Answer **all** questions in this Section*
*Questions **1** to **20** carry two marks each.*

1. Add: 3076 + 6

$$\begin{array}{r} 3076^{1} \\ +\ \ 6 \\ \hline \mathbf{3082} \end{array}$$

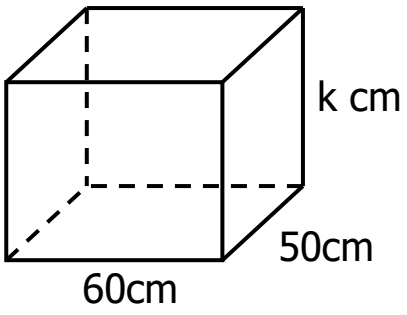
6+6= 12
7+1= 8
0+0= 0
3+0= 3

2. Write 505,050 in words.

Thousands	Units
505	050

Five hundred five thousand,fifty.

3. The volume of the tank below is 120,000cm^3. Find the height of the tank.



Value of K

= Volume / L X W

= 120,000 X cm X cm X cm / 60cm X 50cm

= $\frac{1200\text{cm}}{6 \times 5}$ = **40cm**

4. Francis banked sh. 60,000 in Crane Bank. If the interest rate was 8% per annum. How much did he earn after nine months?

P = sh. 60,000
R = 8%
T = $\frac{9}{12}$ yrs
I = P X T X R

I = sh. $\frac{60,000}{} \times \frac{8}{100} \times \frac{9}{12}$

= sh. 100 x 8 x $\frac{9}{2}$

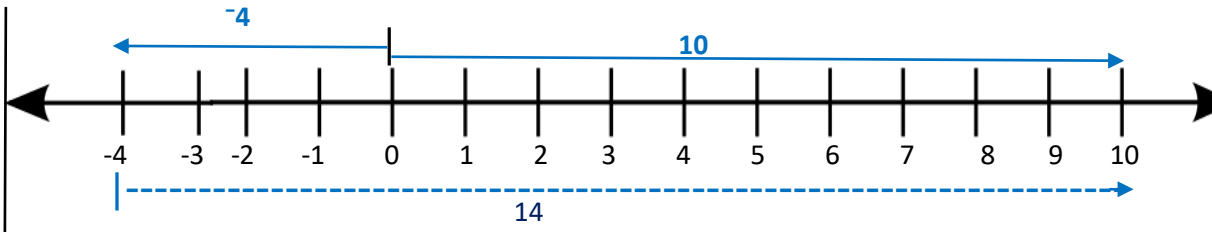
= sh. 3,600

Money earned

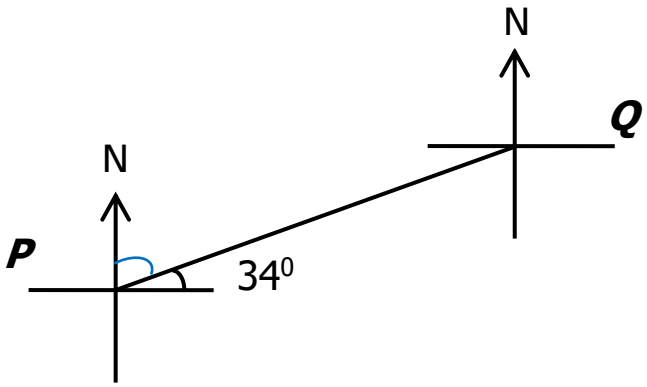
A + I
sh. 60,000
sh. 3,600
sh. 63,600

5. Simplify: $^{+}10 - {}^{-}4$

$10-(-4)$
$10 + 4$
14



6. Use the sketch diagram below to find the bearing of town ***Q*** from ***P***.



$^{8}\cancel{0}^{10}\cancel{90}^{0}$
-034^{0}
056^{0}

7. Round off 64.98 to the nearest tenths.

$6\ 4^{1}.9|8$
$0.1|0$
$6\ 5.0|\cancel{0}$

$\therefore$ 64.98 ≈ 65.0

64.98
+ 0.10
65.08

$\therefore$ 64.98 ≈ 65.0

8. A wheel of diameter 28cm is rolling along the path of 176m. How many revolutions does it make?

$C = \pi D$
$C = \frac{22}{7} \times \cancel{28}^{4} cm$
$C = 22 \times 4\ cm$
$C = 88cm$

Distance in cm
1M → 100cm
176M → (176 × 100)cm
= 17600cm

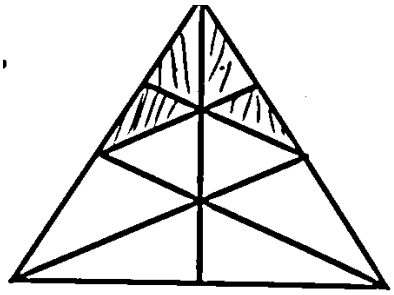
No. of Revolution
$= \frac{\text{Distance}}{C_{200}}$
$= \frac{\cancel{17600}}{\cancel{88}_{1}}$
$= 200$

9. Shade $\frac{2}{5}$ on the figure below.

$= \frac{2}{5} \times 10 \text{ parts}$

$= 2 \times 2$

$= 4 \text{ parts}$



10. Simplify: $\frac{0.48 \times 0.14}{0.6}$

$(0.48 \times 0.14) \div 0.6$

$= \left(\frac{48}{100} \times \frac{14}{100}\right) \div \frac{6}{10}$

$= \frac{48}{100} \times \frac{14}{100} \times \frac{10}{6}$

$= \frac{16}{100} \times \frac{10}{10} \times \frac{1}{1}$

$= \frac{112}{1000}$

$= 0.112$

11. The base area of a cylindrical tank is 1386cm^2. Find its capacity if it has a height of 100cm. (Use $\pi = \frac{22}{7}$)

$\text{Capacity} = \text{Volume}$

$= \text{Base Area} \times h$

(Use $\pi = \frac{22}{7}$)

$= \frac{1386 \text{ cm} \times \text{cm} \times 100 \text{ cm}}{1000 \text{ cm} \times \text{cm} \times \text{cm}}$

$= \frac{1386 \times 100}{1000} \text{ L}$

$= 138.6 \text{ L}$

12. Express 0.070707… as a common fraction in its simplest form.

Let a be the fraction.

$a = 0.070707 \quad \text{(i)}$

$100a = 0.07070707 \times 100$

$100a = 7.070707 \quad \text{(ii)}$

$100a = 7.070707$

$a = 0.070707$

$99a = 7.00000$

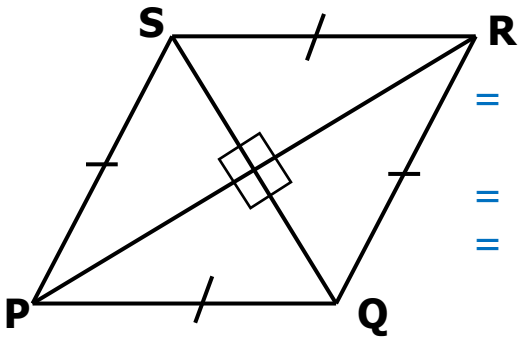
$\frac{99a}{99} = \frac{7}{99}$

$a = \frac{7}{99}$

13. Multiply: $101_{two} \times 11_{two}$

101_{two}
$\times 11_{two}$
101
$+101$
1111_{two}.

14. Below is a rhombus **PQRS**. PR = 16cm and SQ= 12cm. Calculate its perimeter.



= $\frac{2}{5} \times \overset{2}{\cancel{10}}$ parts

= 2x2

= **4 parts**

15. Mango juice is sold in 250ml sachets. How much money would Joseph pay for 1 liter of juice if each sachet costs sh. 1,200?

1L → 1000ml.

250ml → sh. 1,200

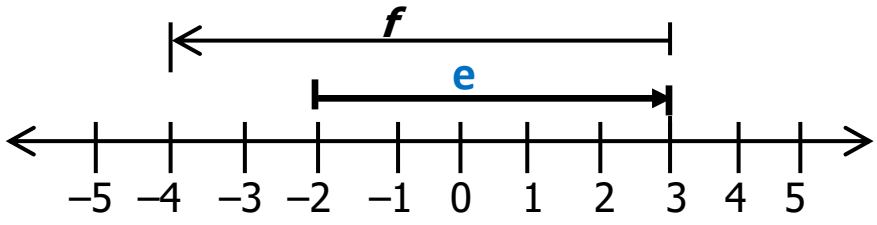
1ml → sh. $\frac{1200}{250}$

1000ml → sh. $\left(\frac{1200}{\cancel{250}} \times \frac{4}{\cancel{1000}}\right)$

= sh. 1200 x 4

= sh. 4,800

16. Write the integers that are represented by the arrows *e* and *f*.



(i) ***e*** +5

(ii) ***f*** –7

17. The table below shows marks scored by some pupils in Primary Six class at a certain school. Use it to find their median mark.

No. of pupils	2	3	1	2
Marks scored	60	75	95	55

55, 55, 60, 60, 75, 75, 75, 95

Median $= \left(\frac{60+75}{2}\right)$ mks

$= \frac{135}{2}$

$= 67\frac{1}{2}$ mks

18. A car travels for 20 minutes at the speed of 90km/hour. Find the distance it covers.

$D = S \times T$

$= \left(90 \times \frac{20}{60}\right)$ km

$= \left(\frac{30}{90} \times \frac{1}{\cancel{60}}\right)$ km

$= 30$ km

4

19. Find the next two numbers in the sequence:

81, 64, 49, 36, ……, ……

81, 64, 49, 36, 25, 16

(9×9) (8×8) (7×7) (6×6) (5×5) (4×4)

25 16

20. Nine men take 10 days to slash a school compound. How many more men are needed to slash the same compound in only 6 days working at the same rate?

same rate?

10 days ⇒ 9 men

1 day ⇒ (9 × 10) men

6 days ⇒ $\left(\frac{9^{3} \times 10^{5}}{6_{2}}\right)$ men

6 days ⇒ (3 × 5!) men

= 15 men

Difference

= (15 − 9)

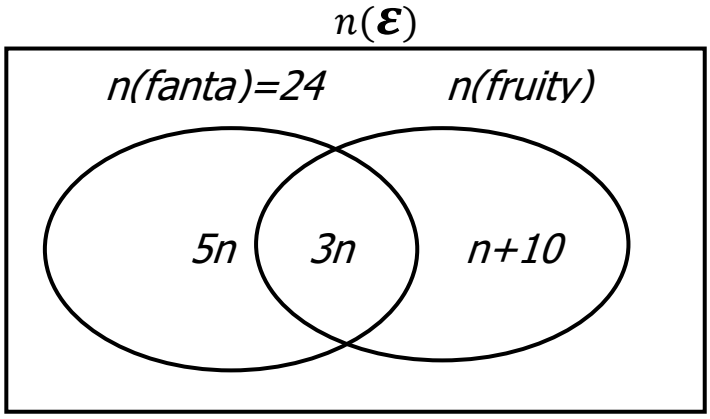
= 6 more men

SECTION B: 60 MARKS

*Answer **all** questions in this Section*

Marks for each question are indicated in brackets

21. The Venn diagram below shows different drinks of sodas taken by different people at a certain party. Study and use it to answer the questions that follow.



(a) Find the value of ***n***. *(02 Marks)*

$n(\mathcal{E}) = (n+10) + 24$

$= 3 + 10 + 24$

$\therefore n(\mathcal{E}) = 37$

(b) How many people attended the party? *(02 Marks)*

$$n(\mathcal{E}) = (n+10)+24$$
$$= 3+10+24$$
$$\therefore n(\mathcal{E}) = \underline{\underline{37}}$$

(c) What is the probability of picking a person who took only fruity to be the MC? *(02 Mark)*

$$\text{Prob}(F) = \frac{n(F)\text{only}}{n(\mathcal{E})} = \frac{n+10}{37} \quad \| \quad = \frac{3+10}{37} = \frac{13}{37}$$

22. Muliika went with twenty thousand shilling note to the market and bought the following items.

3kg of sugar at sh 2,800 per kg.
$1\frac{1}{2}$ kg of salt at sh 260 per kg.
4 bars of soap for sh 4,000.
300ml of cooking oil at sh 2,000 per liter.

(a) If he was given a discount of 10%, how much did he pay for all items? *(04 Marks)*

Sugar.
=sh. 2800×3
sh. 8400

Salt
=sh. (260×1½)
=sh (260×3/2)
=sh. (130×3)
=sh. 390

Soap
=sh. 4,000

Cooking oil.
=sh. (300/1000 × 2400)
=sh. 300×2
=sh. 600

Total expt.
sh. 8400
sh. 390
sh. 4000
+sh. 600
sh. 13,390

Amount paid
=sh. (13390 − 1/100 × 13390)
=sh. (13,390 − 1339)
sh. 12,051

(b) How much in Kenyan shillings did Muliika pay after the discount if *Ksh 1 = Ugsh 30* ? *(01 Mark)*

Ugsh. 30 → kSh. 1
Ugsh. 12051 → kSh. (12051 ÷ 30)
= kSh 401.7

23. Mweruka wants to fence her rectangular plot of land which is 225m by 165m with poles placed 3m apart.

(a) How many poles will she need? *(03 Marks)*

No. of poles = Perimeter / Interval
= 2(L+W) / 3m
= 2(225m + 165m) / 3m
= 2(390)m / 3m
= 780 / 3
= 260

(b) If each pole costs sh 2,000. How much will she spend on fencing her plot of land? *(02 Marks)*

1 pole ⟶ sh. 2,000
260 poles ⟶ sh. (260 x 2,000)
= **sh. 520,000**

24. Use the equation $y = -2x + +4$ to complete the table below.

(04 Marks)

x	−3	−2	−1	0	1	2
y	10	8	6	4	2	0

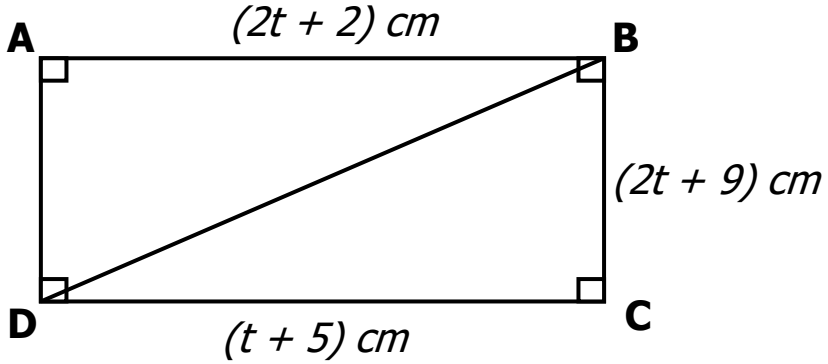
$y = (-2 \times -2) + 4$
$y = 4 + 4$
$y = 8$

$y = (-2 \times -1) + 4$
$y = 2 + 4$
$y = 6$

$y = (-2 \times 1) + 4$
$= -2 + 4$
$= 2$

$x = \frac{y-4}{-2}$
$x = \frac{0-4}{-2}$
$x = \frac{(-1)(-2)}{(-1)(2)}$
$x = 2$

25. Below is a rectangle **ABCD**. Use it to answer the questions that follow.



(a) Find the value of ***t***. *(02 Marks)*

$(2t + 2)\text{cm} = (t + 5)\text{cm}$
$2t + 2 = t + 5$
$2t - t + 2 = t - t + 5$
$t + 2 = 5$

$t + 2 - 2 = 5 - 2$
$t = 3$

(b) Find the length of the diagonal **DB**. *(03 Marks)*

$DC = (3+5)\,Cm$
$= 8\,Cm$
$BC = (2\times3+9)\,Cm$
$= (6+9)\,Cm$
$= 15\,Cm$

$DB^2 = BC^2 + DC^2$
$= (8Cm)^2 + (15Cm)^2$
$= 64Cm^2 + 225Cm^2$
$\sqrt{DB^2}\ \sqrt{289Cm^2}$

$DB = 17Cm$

26. (a) Solve the equation: $2 - \frac{2x}{3} = 4$. *(02 Marks)*

$2 - \frac{2x}{3} = 4$
$2\times3 - \frac{2x}{3}\times3 = 4\times3$
$6 - 2x = 12$
$6 - 6 - 2x = 12 - 6$

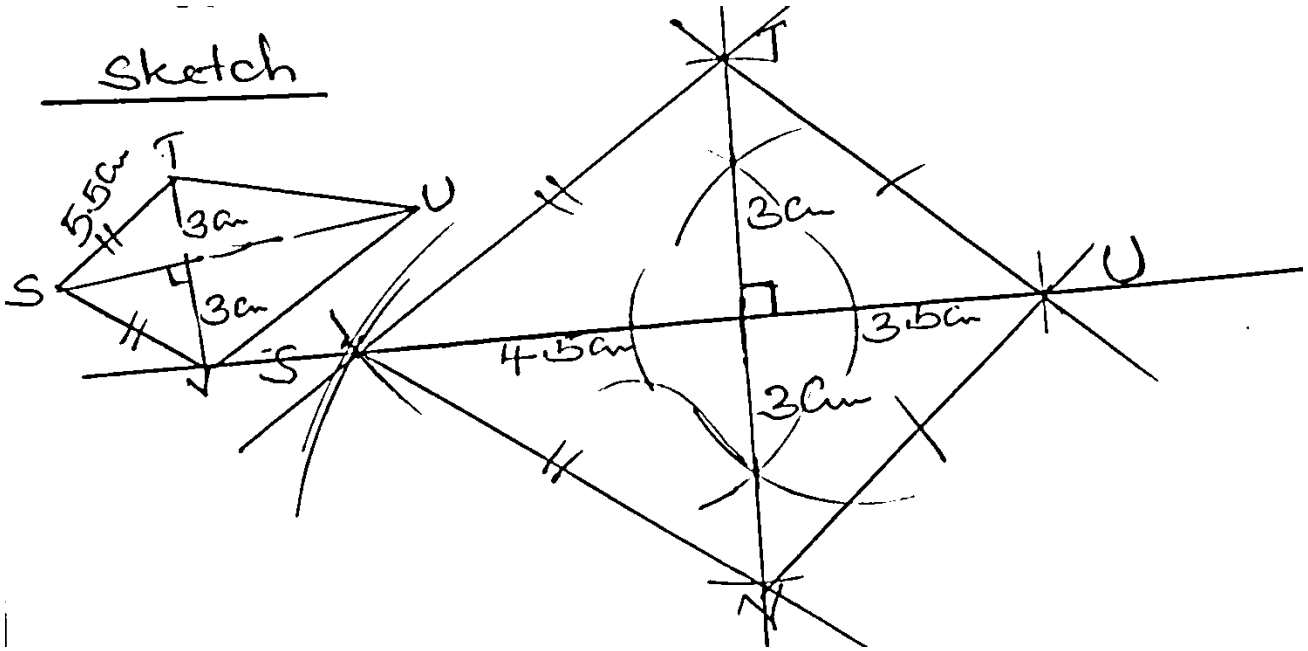
$\frac{-2x}{-2} = \frac{-3}{-2}$
$x = -3$

(b) Simplify: $\frac{2}{3}(6w - 3) - \frac{1}{2}(4 - 2w)$ *(03 Marks)*

$\frac{2}{3}(6w-3) - \frac{1}{2}(4-2w)$
$\frac{2}{3}\times6w - \frac{2}{3}\times3 - \frac{1}{2}\times4 + \frac{1}{2}\times2w$
$4w - 2 - 2 + w$
$4w + w - 2 - 2$

$5w - 4$

27. (a) Using a ruler, a pencil and a pair of compasses only, construct a kite **STUV** in which ST = SV = 5.5cm, SU = 8cm and TV = 6cm. *(04 Marks)*



(b) Measure length TU **4.6 / 4.7 / 4.8** cm *(01 Mark)*

28. Tajiri covered his living room which measures 9m by 6m with square tiles of 30cm each side.

(a) How many tiles were used? *(03 Marks)*

1m → 100cm
L = (9x100)cm
L = 900cm

W = (6x100)cm
= 600cm

No. of tiles
$= \frac{900}{30} \times \frac{600}{30}$

$= \frac{\cancel{90}^{30}}{\cancel{30}_1} \times \frac{\cancel{60}^{20}}{\cancel{30}_1}$
= 30x20
= 600

(b) If at the Hardware, 50 tiles are packed in the box and each box costs sh 60,000, how much did Tajiri spend on buying the tiles? *(02 Marks)*

No. of boxes

$\frac{600}{50}$

$= 12$

1 box → Sh. 60,000

12 boxes → Sh. (12 × 60,000)

$= Sh.\ 720,000$

29. (a) The interior angle of a regular polygon is 135^0. What is the name of the polygon? *(02 Marks)*

Ext ∠ $= (180 - 135)^0$

$= 45^0$

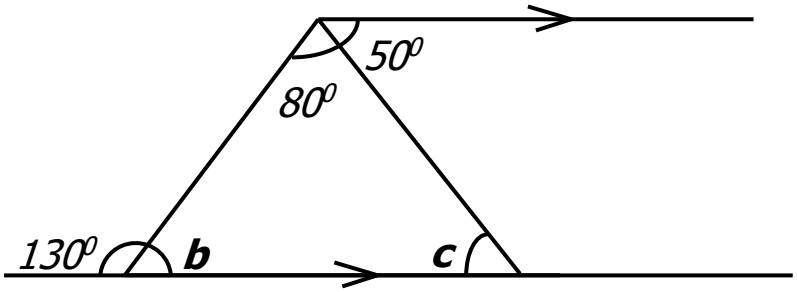
No. of sides $= \frac{\text{Ext } \angle \text{sum}}{\text{Each ext } \angle}$

$= \frac{360^0}{45^0}$

$= 8$ sides

The polygon is an octagon

b) In the figure below, find the size of angles ***b*** and ***c***.



(i) angle ***b*** *(02 Marks)*

$b + 80^\circ = 130^\circ$

$b + 80^\circ - 80^\circ = 130^\circ - 80^\circ$

$b = 50^\circ$

Or

$b + 130^\circ = 180^\circ$ (sup ∠s)

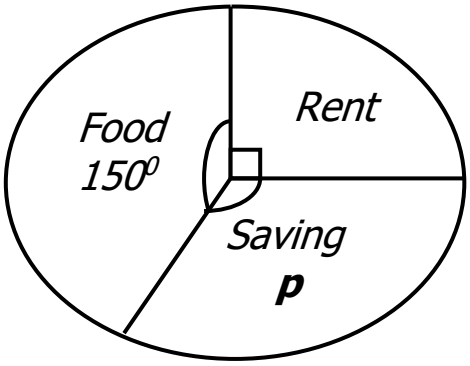
$b + 130^\circ - 130^\circ = 180^\circ - 130^\circ$

$b = 50^\circ$

(ii) angle ***c*** *(01 Mark)*

C = 50⁰ (alt<S)

30. The pie chart below shows how Mrs. Kasoone spends her salary per month.



(a) Find the value of ***p*** in degrees. *(02 Marks)*

$P + 150° + 90° = 360°$ M1
$P + 240° = 360°$
$P + 240° - 240° = 360° - 240°$
$P = 120°$ B1

(b) If Mrs. Kasoone spends shs. 450,000 on food every month. How much does she earn in a year? *(03 Marks)*

150° → sh. 450,000
1° → sh. 450,000 ÷ 150
1° → sh. 3000
360° → sh. 3000 × 360
= sh. 1,080,000 B1
12 months → 1 year
1 month → sh. 1,080,000
12 months → sh (1,080,000 × 12) M1
= sh. 12,960,000 A1

Turn Over

31. Apuuli is 4 years older than Amooti, while Akiiki is 2 years younger than Apuuli. The total age of Apuuli and Amooti is 28 years.

(a) How old is Akiiki? *(03 Marks)*

Let a be Apuuli's age

Apuuli	Amooti	Total
a	(a − 4)	28

$a + (a - 4) = 28$

$a + a - 4 = 28$

$2a - 4 = 28$

$2a - 4 + 4 = 28 + 4$ *(03 Marks)*

$\frac{2a}{2} = \frac{32^{16}}{2}$

$a = 16$ yrs.

Akiiki's age $= (a - 2)$

$= 16 - 2$

$= 14$ yrs

(b) How old will Apuuli be in 2 years time to come? *(02 Marks)*

Now ⟶ 16 yrs
2 years to come
= 16 + 2
= 18 years.

32. Odeke travelled from town ***A*** to town ***C*** a distance of **325 km**. He started the journey at 8:30 a.m and drove at a speed of 75 kph for 2 hours. He rested for 1 hour at town ***B*** and then continued to town ***C*** for $2\frac{1}{2}$ hours.

(a) Show how Odeke travelled on the graph below. *(03 Marks)*

$D_1 = S \times T$
$= (75 \times 2)\text{km}$
$= 150\text{km}$

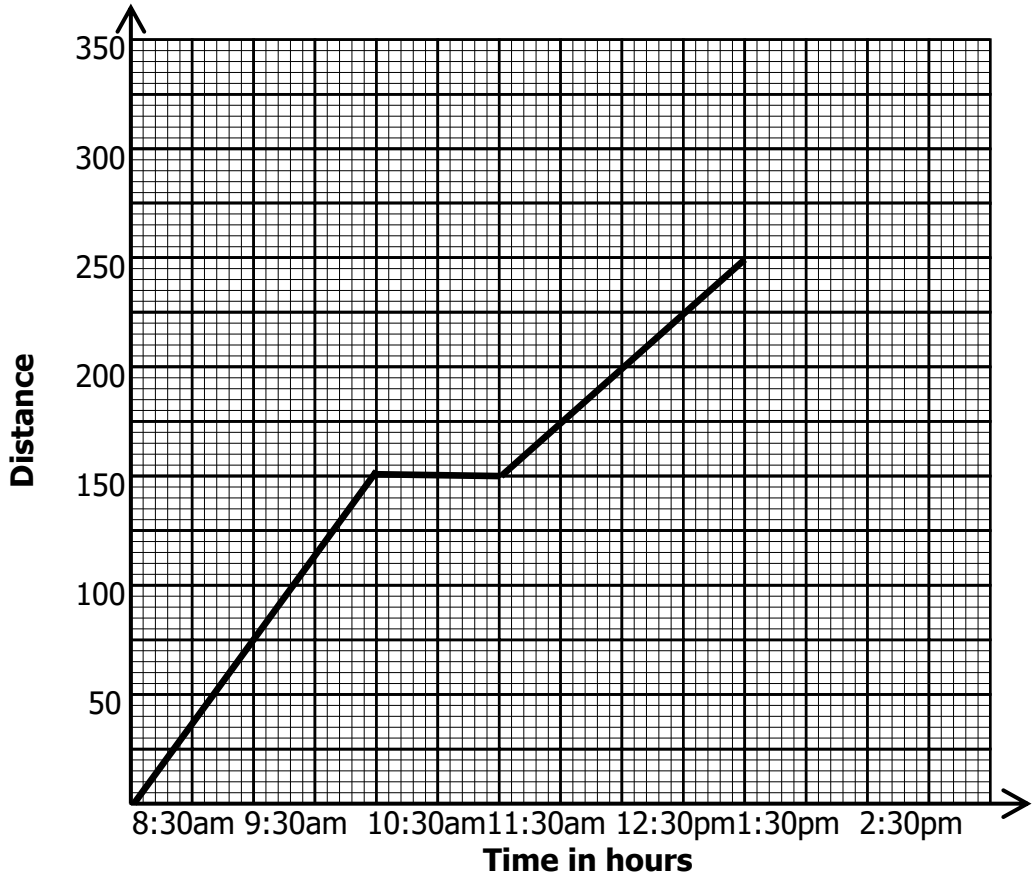
$D_2 = 325\text{km}$
$- 150\text{km}$
175km

$T_1 = 2\text{hrs}$

$T_2 = 1\text{hr}$

$T_3 = 2\frac{1}{2}\text{hrs}$

$S.T = 8:30\text{am}$



(b) At what time did Odeke arrive at town ***C***? *(02 Mark)*

1:30 pm

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