

DEC MTC PRE PLE GUIDE SET 1 2022

DEC MTC PRE PLE SET 1 MARKING GUIDE 2022

1.

$$\begin{array}{r} 1 \quad 2 \\ 2 \overline{) 2} \quad 4 \\ 1 \times 2 = \underline{2} \quad \downarrow \\ 2 \times 2 = \underline{4} \\ \therefore 24 \div 2 = 12 \end{array}$$

2.

$$94 = \begin{array}{c|c} 90 & 4 \\ \hline \text{XC} & \text{IV} \end{array}$$

$\therefore 94 = \text{XCIV}$

3.

$$K = \{b, c, e, f, h\}$$

$$L = \{a, b, d, f, h\}$$

$(K \cap L)^c = \{c, e, a, d\}$

$\therefore n(K \cap L)^c = 4$

4.

$$1000g = 1kg$$

$$1g = \frac{1}{1000}kg$$

$$2570g = 2570 \times \frac{1}{1000}kg$$

$$\frac{257}{100}kg$$

$\therefore 2570g = 2.57kg$

5.

$$3p - (p - 5)$$

$$3p - p + 5$$

$$2p + 5$$

6.

$$\frac{7}{3} + \frac{3}{4} \text{ (LCM)=12}$$

$$\frac{7 \times 4}{3 \times 4} + \frac{3 \times 3}{4 \times 3}$$

$$\frac{28}{12} + \frac{9}{12}$$

$$\frac{37}{12}$$

$3\frac{1}{12}$

7.

$$1, 3, 6, 11, 18, \underline{29}$$

$$1+2=3$$

$$3+3=6$$

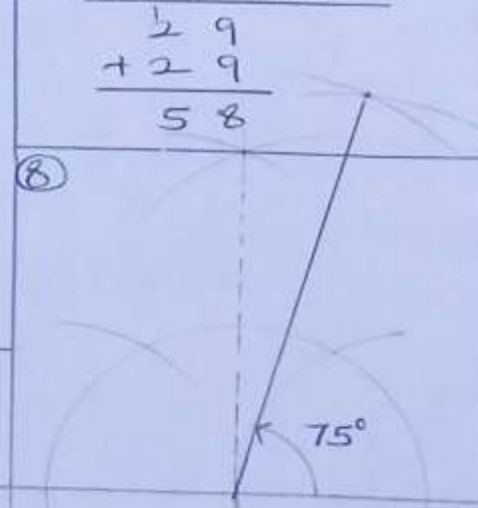
$$6+5=11$$

$$11+7=18$$

(Addition of prime numbers)

Double of the next number.

$$\begin{array}{r} 18 \\ + 11 \\ \hline 29 \end{array}$$



9. Median mark

56, 56, 56, 76, 70, 80, 90, 96, 96, 96, 96

70 + 80

150

75

Number of pupils who scored above the median mark.

4 + 1

5

10.

$(20 \div \frac{1}{2})$ full cups

$20 \times \frac{2}{1}$ full cups

40 full cups.

11.

$$2p + 90^\circ + 40^\circ = 180^\circ$$

$$2p + 130^\circ = 180^\circ$$

$$2p + 130^\circ - 130^\circ = 180^\circ - 130^\circ$$

$$2p = 50^\circ$$

$$\frac{2p}{2} = \frac{50^\circ}{2}$$

$$p = 25^\circ$$

12. 6 hrs and $\frac{1}{3} \times 60 \text{ min}$

6 hrs and 20 minutes.

Starting time

K.T - D

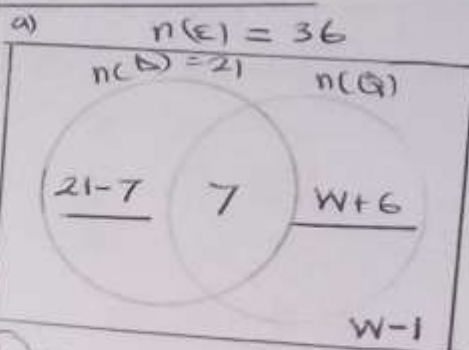
5 : 00 a.m

$$\begin{array}{r} - 6 \quad 20 \\ \hline 11 \quad 20 \\ - 6 \quad 20 \\ \hline 10 : 40 \text{ p.m} \end{array}$$

$$\begin{aligned}
 & -a^2 \\
 & -xb - a \times a \\
 & 2 \times 3 - 2 \times -2 \\
 & 6 - (+4) \\
 & 6 - 4 \\
 & 2
 \end{aligned}$$

$$\begin{aligned}
 36m^2 &= b^2 \\
 2^2 \times 3^2 \times m^2 &= b^2 \\
 2^2 \times 3^2 \times m^2 &= b^2 \\
 2 \times 3 \times m &= b \\
 6m &= b \\
 \text{Total distance}
 \end{aligned}$$

SECTION B.



b) $W+6+W-1+7+21-7=36$

$$\begin{aligned}
 W+W+6-1+7+21-7 &= 36 \\
 2W+5+7+14 &= 36 \\
 2W+26 &= 36 \\
 2W &= 10 \\
 \frac{2W}{2} &= \frac{10}{2} \\
 W &= 5
 \end{aligned}$$

Debating Complement

$$\begin{aligned}
 W+6+W-1 \\
 5+6+5-1 \\
 11+4 \\
 15 \text{ pupils}
 \end{aligned}$$

22 (a)

$$\begin{aligned}
 & 3-4 \\
 & 3 \quad 6 \quad 8 \quad (3+5)-4 \\
 & 4 \quad 2 \quad 3 \quad 8-4 \\
 & -2 \quad 3 \quad 4 \quad 1-3 \\
 & 1 \quad 3 \quad 4 \quad (1+5)-3 \\
 & \quad \quad \quad 6-3 \\
 & \quad \quad \quad 3 \\
 & \quad \quad \quad 3-2=1
 \end{aligned}$$

b) $43_7 = 23_{\text{ten}}$

$$\begin{aligned}
 (4 \times 7) + (3 \times 1) &= 23 \\
 4 \times 7 + 3 \times 1 &= 23 \\
 47 + 3 &= 23 \\
 47 + 3 - 3 &= 23 - 3 \\
 47 &= 20 \\
 47 &= 20 \\
 47 &= 20 \\
 47 &= 20
 \end{aligned}$$

The unknown base is five

14.

$$\begin{aligned}
 68.96 &\rightarrow 1 \times \frac{1}{10} \\
 \frac{1}{10} &= 0.1
 \end{aligned}$$

$$\begin{array}{r}
 68.9 \\
 + 0.1 \\
 \hline
 69.0
 \end{array}$$

$$\therefore 68.96 \approx 69.0$$

15. Buying Price

$$\begin{aligned}
 & \text{S.P.} + \text{loss} \\
 & \text{Sh. } 37,000 \\
 & + \text{Sh. } 13,000 \\
 & \text{Sh. } 50,000
 \end{aligned}$$

16. Smallest number

$$\begin{array}{c|c|c}
 2 & 12 & 18 \\
 \hline
 2 & 6 & 9 \\
 \hline
 3 & 3 & 9 \\
 \hline
 3 & 1 & 3 \\
 \hline
 1 & 1 & 1
 \end{array}$$

$2 \times 2 \times 3 \times 3$
 4×9
 36

$$\begin{aligned}
 & \text{LCM} + \text{Rem} \\
 & 36 + 0
 \end{aligned}$$

36 books.

17.

$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 c^2 - a^2 &= b^2 \\
 (10m)^2 - (8m)^2 &= b^2 \\
 100m^2 - 64m^2 &= b^2 \\
 36m^2 &= b^2
 \end{aligned}$$

Old	New
100%	100-20%
?	80%
	280 pupils

$$\begin{aligned}
 80\% \text{ rept } 280 \text{ pupils} \\
 1\% \text{ rept } \frac{280}{100} \text{ pupils} \\
 100\% \text{ rept } \left(\frac{280}{100} \times 100 \right) \text{ pupils} \\
 280 \text{ pupils} \\
 7 \times 50 \text{ pupils} \\
 350 \text{ pupils}
 \end{aligned}$$

19. Speed used

$$\begin{aligned}
 D &\div T \\
 90 \text{ km} &\div \frac{5}{2} \text{ hr} \\
 18 \text{ km} &\times \frac{2}{5} \text{ hr} \\
 \text{Time} &= \frac{4}{6} \text{ hr} \\
 D &\div S \\
 27 \text{ km} &\div 36 \text{ km/hr} \\
 27 \text{ km} &\times \frac{1}{36} \text{ hr} \\
 \text{Time} &= \frac{3}{4} \text{ hr}
 \end{aligned}$$

20.

$$\begin{aligned}
 \frac{90}{360} \times 1800 \text{ pupils} \\
 \frac{1}{4} \times 1800 \text{ pupils} \\
 450 \text{ pupils}
 \end{aligned}$$

1 st no	2 nd no	3 rd no	Total
k-2	k-1	k	24
9-2	9-1	9	
7	8		

$$k-2+k-1+k=24$$

$$k+k+k-2-1=24$$

$$3k-3=24$$

$$3k-3+3=24+3$$

$$3k=27$$

$$\frac{3k}{3}=\frac{27}{3}$$

$$k=9$$

Sum of the first 2 numbers-

$$7+8$$

$$15$$

4 Sum of marks = Average
No. of tests

$$(50 \times 2) + (50 \times 4) + 60p + (45 \times 3) = 61$$

$$9+p$$

$$100 + 320 + 60p + 135 = 61$$

$$9+p$$

$$420 + 60p + 135 = 61$$

$$9+p$$

$$(555 + 60p) \times \frac{1}{9+p} = 61 \times (9+p)$$

$$(9+p)$$

$$555 + 60p = 549 + 61p$$

$$-655$$

$$60p - 61p = 549 - 555$$

$$-p = -6$$

$$-p = -6$$

$$-1 = -1$$

$$p = 6$$

⑥

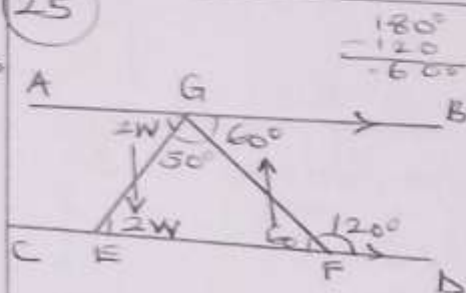
Number of tests

$$2+4+p+3$$

$$2+4+6+3$$

$$15$$

25



G F D | E G F

$$120^\circ$$

$$120^\circ$$

$$-70$$

$$50^\circ$$

a) Value of W

$$2W + 60^\circ + 50^\circ = 180^\circ$$

$$2W + 110^\circ = 180^\circ$$

$$2W + 110^\circ - 110^\circ = 180^\circ - 110^\circ$$

$$2W = 70^\circ$$

$$\frac{2W}{2} = \frac{70^\circ}{2}$$

$$W = 35^\circ$$

⑥ Angle GEC

$$50^\circ + 60^\circ \text{ (Alternating Interior \angle s) are equal}$$

$$110^\circ$$

26 a)

$$7 - 2 = 4$$

$$7 - 7 - 2 = 4 - 7$$

$$-2 = -3$$

$$-2 = -3$$

$$-1 = -1$$

$$2 = 3$$

⑥ $8 > 2k - 2$

$$8+2 > 2k-2+2$$

$$10 > 2k$$

$$\frac{10}{2} > \frac{2k}{2}$$

$$5 > k$$

$$\therefore k < 5$$

Natural numbers < 5

$\{1, 2, 3, 4\}$

Solution set of k

$\{1, 2, 3, 4\}$

27 Circumference

SC D

$$D = 2r$$

$$\frac{22}{7} \times 70 \text{ cm}$$

$$\frac{35}{2} \times 2$$

$$\frac{22}{7} \times 70 \text{ cm}$$

$$22 \times 10 \text{ cm}$$

$$220 \text{ cm}$$

Distance from home to Hardware

C x Revolutions

$$220 \text{ cm} \times 50$$

$$2200$$

$$\times 5$$

$$11000 \text{ cm}$$

⑥ Area of the cover

$$\pi r^2$$

$$\pi \times r \times r$$

$$\frac{22}{7} \times 35 \text{ cm} \times 35 \text{ cm}$$

$$\frac{22}{7} \times 35 \text{ cm} \times 35 \text{ cm}$$

$$110 \text{ cm} \times 35 \text{ cm}$$

$$3850 \text{ cm}^2$$

DIV I	DIV II	DIV III
$\frac{1}{6}$	$\frac{2}{3} \times \frac{5}{6}$	$\frac{5}{6} - \frac{5}{9}$
Remainder $\frac{6-1}{6}$	$\frac{5}{9}$	$\frac{15-10}{18}$
$\frac{6-1}{6}$		$\frac{5}{18}$
$\frac{6-1}{6}$		
$\frac{5}{6}$		

(b) 5 parts rept 30 pupils
 1 part repts $\frac{30}{5}$ pupils
 18 parts rept $(\frac{30}{5} \times 18)$ pupils
 6×18 pupils
 108 pupils
 $\therefore 108$ pupils were in the class.

29 a) 18000×36
 3600
 1
 180 USD

(b)
$$\begin{array}{r} 240 \\ + 104,000 \\ \hline 104,240 \end{array}$$

240
 240 British
 Pound Sterling.

$$\begin{array}{r} 00240 \\ 46 \overline{) 11040} \\ \underline{0} \\ 11 \\ \underline{0} \\ 140 \\ \underline{92} \\ 184 \\ \underline{184} \\ 0 \\ \underline{0} \end{array}$$

$0 \times 46 = 0$
 $0 \times 46 = 0$
 $2 \times 46 = 92$
 $4 \times 46 = 184$
 $0 \times 46 = 0$

30 a) $\frac{0.56 - 0.2}{0.6 \times 0.3}$

$$\begin{array}{r} 0.56 \\ - 0.2 \\ \hline 0.36 \end{array}$$

$$\frac{36}{100} \div \left(\frac{6}{10} \times \frac{3}{10} \right)$$

$$\frac{36}{100} \times \frac{10}{6} \times \frac{10}{3}$$

$$2 \times 1 \times 1$$

2

(b) Consider the common fraction as k .

$k = 0.\bar{6}$ (i)

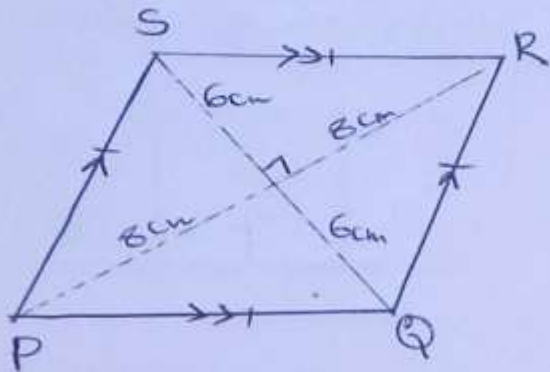
$10 \times k = 0.6 \times 10$
 $10k = \frac{6}{10} \times 10$
 $10k = 6$ (ii)

$10k = 6.6$
 $- k = -0.6$
 $\hline 9k = 6.0$

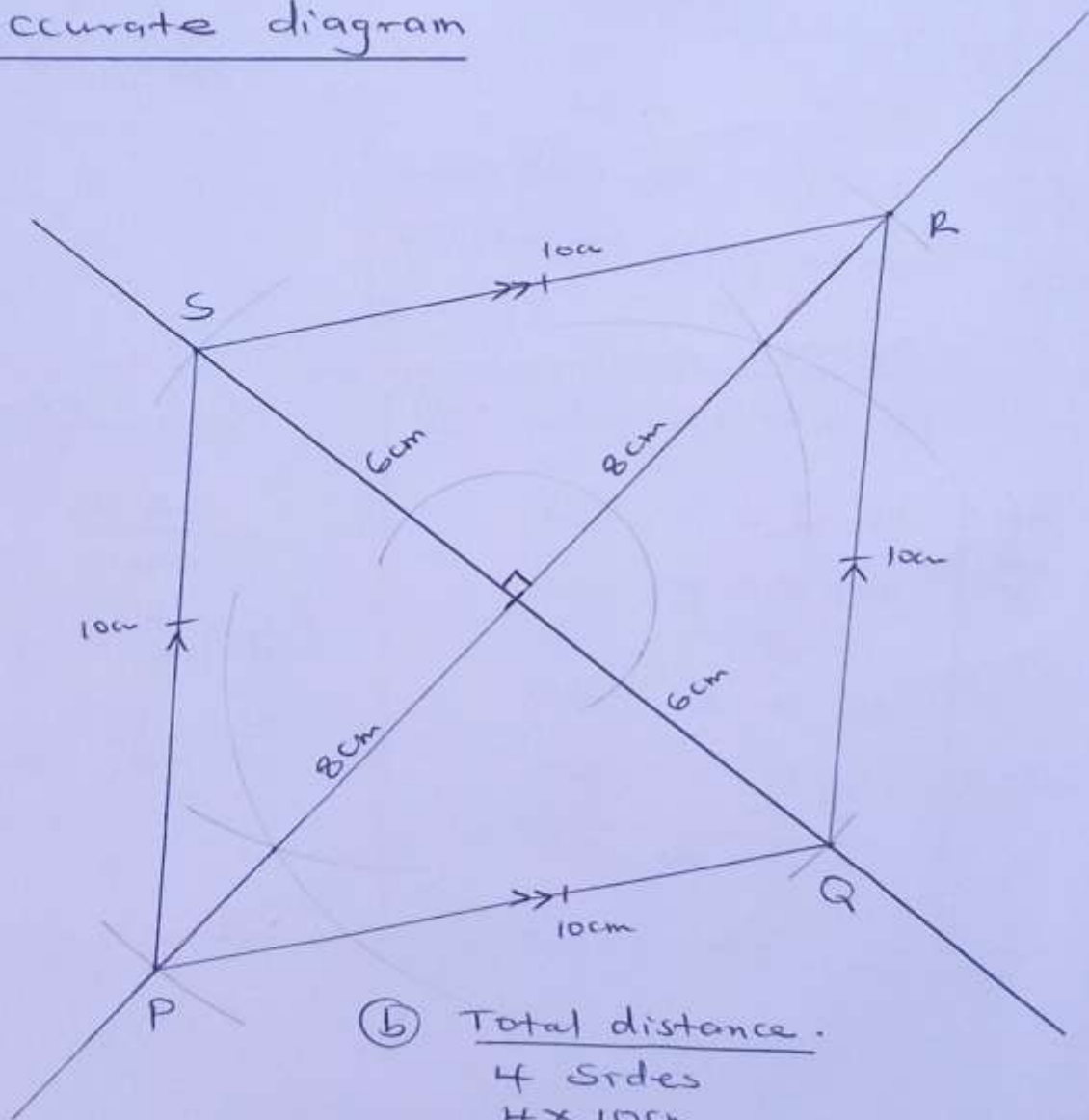
$9k = 6$
 $\frac{9k}{9} = \frac{6}{9}$
 $k = \frac{2}{3}$

$\therefore 0.\bar{6} = \frac{2}{3}$

31. Sketch

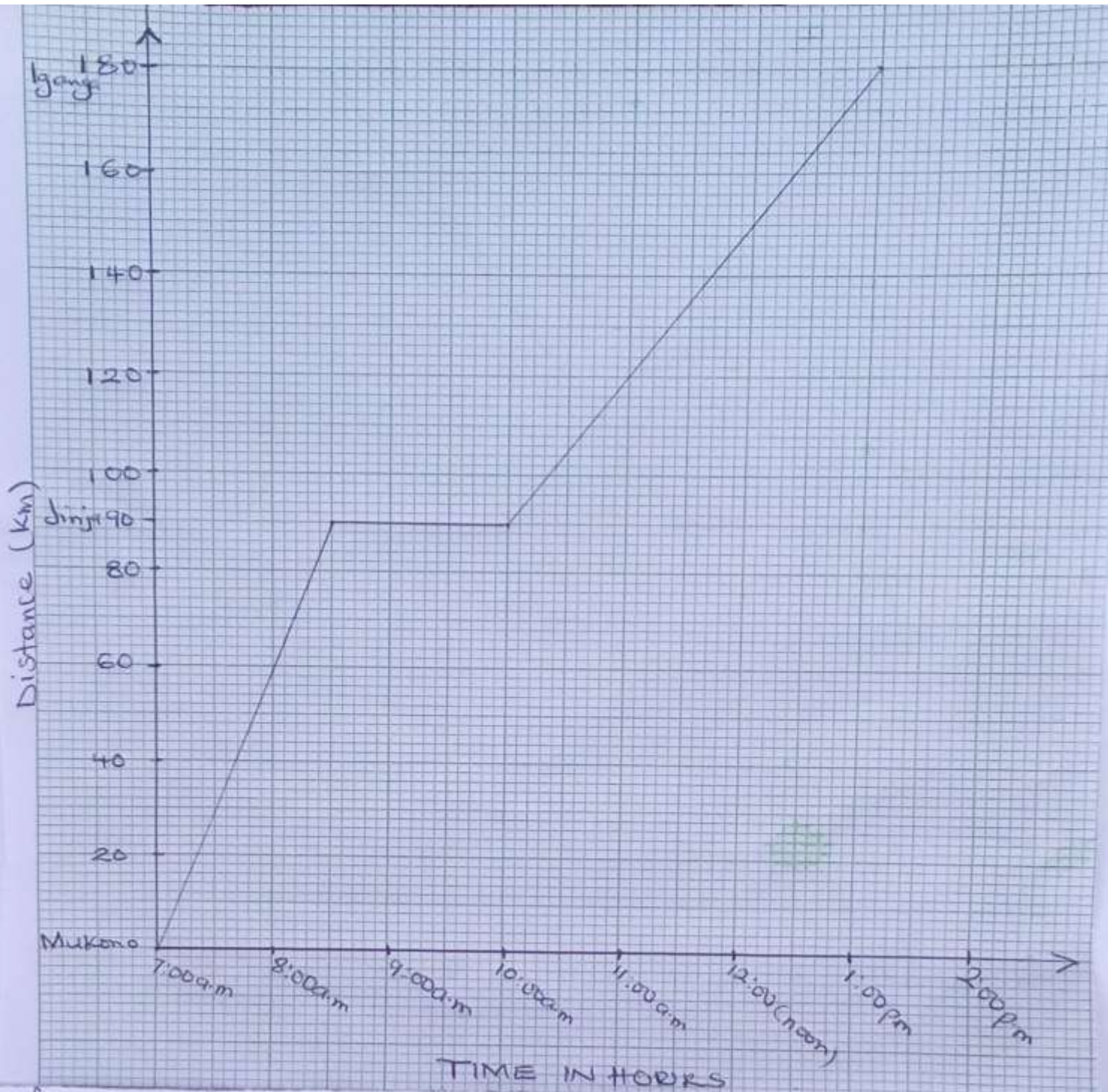


Accurate diagram



⑥ Total distance.

4 Sides
 $4 \times 10\text{cm}$
 40cm



Distance from Jinja
to Iganga.

$$\begin{array}{r} 180 \text{ km} \\ - 90 \text{ km} \\ \hline 90 \text{ km} \end{array}$$

Time from Jinja
to Iganga

3 hours.

Speed

Distance

Time

$$\begin{array}{r} 90 \text{ km} \\ \div 3 \text{ hrs} \\ \hline \end{array}$$

30 km/hr