

DIVINE EDUCATION CENTRE

P.7 MTC MID TERM ONE MARKING GUIDE.

Q.N	SOLUTION	MKS	PROFESSIONAL ADVISE
1.	$\begin{array}{r} 3 \\ 4 \ 15 \\ - 1 \ 7 \\ \hline 2 \ 8 \end{array}$	B ₂	Award B ₂ for 28
2.	Fourteen thousand - 14,000 forty = + 40 $\begin{array}{r} 14,000 \\ + 40 \\ \hline 14,040 \end{array}$	B ₂	Award B ₂ for 14,040
3.	$3W - (W - 2)$ $3W - W + 2$ $2W + 2$	m ₁ A ₁	Award m ₁ for removing brackets. A ₁ for 2W + 2
4.	$\begin{array}{r} 0 \ t \ h \\ 4 \cdot 4 \ 6 \\ + 0 \cdot 1 \leftarrow \\ \hline 4 \cdot 5 \end{array}$ $\therefore 4 \cdot 46 \approx 4 \cdot 5$	m ₁ A ₁	Award m ₁ for adding 0.1 at the right place value. Award A ₁ for 4.5 Reject + 1
5.	$2p + 20^\circ + 30^\circ + 90^\circ = 180^\circ$ $2p + 140^\circ = 180^\circ$ $2p + 140^\circ - 140^\circ = 180^\circ - 140^\circ$ $2p = 40^\circ$ $\frac{2p}{2} = \frac{40^\circ}{2}$ $p = 20^\circ$	m ₁ A ₁	Award m ₁ for correct formation of the equation. Award A ₁ for the value of P as 20°.
6.	At 1:25pm OR At twenty five minutes past one in the afternoon. OR At 1325 hours	B ₂ B ₂	Award B ₂ for the correct time in 12 hour clock system or 24 hour clock system. Reject; 1:25 1:25a.m

7.	$\frac{\text{Sum of data}}{\text{No of data}} = \text{mean}$ $\frac{7+5+3+2}{4} = 3$ $\frac{(7+10) \times 4}{4} = 3 \times 4$ $7+10 = 12$ $7+10-10 = 12-10$ $7 = 2$	m_1 A_1	<p>Award m_1 for the correct working.</p> <p>Award A_1 for the value of γ as 2.</p>															
8.	$M_+ = \{4, 8, 12, 16, 20, 24, \dots\}$ $M = \{4, 8, 12, 16\}$ <u>Number of Subsets.</u> 2^n (where $n=4$) 2^4 $2 \times 2 \times 2 \times 2$ 16 Subsets	B_1 B_1	<p>Award B_1 for correct identification or listing of the members of set M.</p> <p>Award B_1 for 16 subsets. Accept 16 silent.</p>															
9.	<table border="1"> <thead> <tr> <th>Base</th> <th>No</th> <th>Rem</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>8</td> <td></td> </tr> <tr> <td>2</td> <td>4</td> <td>0</td> </tr> <tr> <td>2</td> <td>2</td> <td>0</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>$\therefore 8_{\text{ten}} = 1000_{\text{two}}$</p>	Base	No	Rem	2	8		2	4	0	2	2	0		1	0	m_1 A_1	<p>Award m_1 for the correct working.</p> <p>Award A_1 for 1000_{two} Accept 1000_2 Reject 1000</p>
Base	No	Rem																
2	8																	
2	4	0																
2	2	0																
	1	0																
10		C_1 C_1	<p>Award C_1 for all the arcs leading to 45°.</p> <p>Award C_1 for correct location of 135°.</p>															

11.	<p>3kg cost sh. 7500</p> <p>1kg costs sh. $\frac{7500}{3}$</p> <p>1kg costs sh. 2,500</p> <p>Weight of the sack</p> $\left(\frac{\text{sh. } 2500}{\text{sh. } 2500} \right) \text{ kg}$ <p>50kg</p>	<p>B₁</p> <p>Award B₁ for sh. 2,500</p>								
12.	<p>C.p = S.p + loss</p> $\begin{array}{r} \text{sh. } 90,000 \\ + \text{sh. } 30,000 \\ \hline \text{sh. } 120,000 \end{array}$	<p>m₁</p> <p>Award m₁ for addition.</p> <p>A₁</p> <p>Award A₁ for sh. 120,000</p>								
13.	<p>$a = \frac{1}{3}b, b = 2$</p> <table border="1"> <tr> <td>a + b</td> <td>$\frac{1}{3} \times 2 + 2$</td> </tr> <tr> <td>$\frac{1}{3}b + b$</td> <td>$\frac{2}{3} + \frac{2}{1}$</td> </tr> <tr> <td>$\frac{1}{3} \times 2 + 2$</td> <td>$\frac{2+6}{3}$</td> </tr> <tr> <td></td> <td>$\frac{8}{3} = 2\frac{2}{3}$</td> </tr> </table>	a + b	$\frac{1}{3} \times 2 + 2$	$\frac{1}{3}b + b$	$\frac{2}{3} + \frac{2}{1}$	$\frac{1}{3} \times 2 + 2$	$\frac{2+6}{3}$		$\frac{8}{3} = 2\frac{2}{3}$	<p>m₁</p> <p>Award m₁ for correct Substitution.</p> <p>A₁</p> <p>Award A₁ for $2\frac{2}{3}$.</p>
a + b	$\frac{1}{3} \times 2 + 2$									
$\frac{1}{3}b + b$	$\frac{2}{3} + \frac{2}{1}$									
$\frac{1}{3} \times 2 + 2$	$\frac{2+6}{3}$									
	$\frac{8}{3} = 2\frac{2}{3}$									
14.	<p>Total chances = $\frac{7+5}{12}$</p> <p>probability = $\frac{n(E)}{n(T.C)}$</p> $\frac{7}{12}$	<p>B₁</p> <p>Award B₁ for 12</p> <p>B₁</p> <p>Award B₁ for $\frac{7}{12}$</p>								
15.	<p>G.C.F of 12 and 15</p> <table border="1"> <tr> <td>3</td> <td>12</td> <td>15</td> </tr> <tr> <td></td> <td>4</td> <td>5</td> </tr> </table> <p>3 pupils</p>	3	12	15		4	5	<p>m₁</p> <p>Award m₁ for correct working.</p> <p>A₁</p> <p>Award A₁ for 3 pupils</p>		
3	12	15								
	4	5								

<p>Decrease</p> <p>Sh. 5000 - Sh. 4000 Sh. 1000</p>	<p>% decrease</p> <p>$\frac{\text{decrease} \times 100\%}{\text{O.P}}$</p> <p>$\frac{\text{Sh. } 1000 \times 100\%}{\text{Sh. } 5000}$</p> <p>20%</p>	<p>m₁</p> <p>A₁</p>	<p>Award m₁ for the correct working.</p> <p>Award A₁ for 20%.</p>
<p>7. Distance in km</p> <p>10m to km</p> <p>1000m = 1 km</p> <p>1m = $\frac{1}{1000}$ km</p> <p>10m = $(\frac{1}{1000} \times 10)$ km</p> <p>= $\frac{1}{100}$ km</p> <p>Speed = $D \div T$</p> <p>$\frac{1}{100} \text{ km} \div (\frac{1}{3600} \text{ hr})$</p> <p>$\frac{1}{100} \text{ km} \times \frac{3600}{1 \text{ hr}}$</p> <p>$\frac{36 \text{ km}}{\text{hr.}}$</p>	<p>Time in hr.</p> <p>1sec to hr</p> <p>3600sec = 1hr</p> <p>1sec = $\frac{1}{3600}$ hr</p> <p>m₁</p> <p>A₁</p>	<p>m₁</p> <p>A₁</p>	<p>Award m₁ for correct substitution in the formula for speed.</p> <p>Award A₁ for $36 \frac{\text{km}}{\text{hr}}$.</p> <p>Reject wrong units.</p>
<p>18. Let the old temperature be γ.</p> <p>$\gamma - 3^{\circ}\text{C} = -5^{\circ}\text{C}$</p> <p>$\gamma - 3^{\circ}\text{C} + 3^{\circ}\text{C} = -5^{\circ}\text{C} + 3^{\circ}\text{C}$</p> <p>$\gamma = -2^{\circ}\text{C}$</p> <p>$\therefore$ The old temperature of Juice was -2°C.</p>	<p>m₁</p> <p>A₁</p>	<p>Award m₁ for correct formation of the equation or for any correct working.</p> <p>Award A₁ for -2°C.</p>	
<p>19. Distance = (No. of trees - 1) \times Int.</p> <p>$(100 - 1) \times 600\text{cm}$</p> <p>$99 \times 600\text{cm}$</p> <p>59400cm</p> <p>59400cm</p> <p>100 cm</p> <p>594 metres</p>	<p>B₁</p> <p>B₁</p>	<p>Award B₁ for 59400cm</p> <p>Award B₁ for 594m.</p>	

<p>22 a)</p> <div style="display: flex; align-items: center; justify-content: center;"><div style="text-align: center;">$\begin{array}{c} 4 \\ \\ 406 \\ +60 \end{array}$</div><div style="margin: 0 20px;">106</div><div style="text-align: center;">$\begin{array}{c} 604 \\ \\ 640 \end{array}$</div></div> <p>$\therefore$ All the possible 3-digit numbers are 406, 460, 604 and 640.</p>	<p>B_2 Award B_2 for all the 3-digit numbers formed.</p> <p>Each number formed carries $\frac{1}{4}$ mark.</p>								
<p>b)</p> <div style="display: flex; align-items: center;"><div style="margin-right: 20px;">largest = 640 Smallest = 406 <hr style="width: 100%;"/> Sum = 1046</div></div>	<p>m_1 Award m_1 for correct working (addition)</p> <p>A_1 Award A_1 for 1046</p>								
<p>23 a)</p> <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>1st no</th><th>2nd no</th><th>3rd no</th><th>Sum</th></tr></thead><tbody><tr><td>K</td><td>K+1</td><td>K+2</td><td>24</td></tr></tbody></table> <div style="margin-top: 10px;">$K + K + 1 + K + 2 = 24$$K + K + K + 1 + 2 = 24$$3K + 3 = 24$$3K + 3 - 3 = 24 - 3$$3K = 21$$\frac{3K}{3} = \frac{21}{3}$$K = 7$</div>	1st no	2nd no	3rd no	Sum	K	K+1	K+2	24	<p>m_1 Award m_1 for the correct formation of the equation.</p> <p>Award A_1 for the correct value of K as 7.</p> <p>A_1</p>
1st no	2nd no	3rd no	Sum						
K	K+1	K+2	24						
<p>b)</p> <div style="text-align: center;">$1st\ no = \frac{LCM \times GCF}{2nd\ no}$$\frac{12}{36} \times 6$$\frac{12}{3} \times 1$$12 \times 1 = 12$<p>$\therefore$ The first number is 12</p></div>	<p>m_1 Award m_1 for the correct working.</p> <p>Award A_1 for 12.</p> <p>A_1</p>								
<p>24. a) (i) $y = -4$ (ii) $w = +5$ (iii) $x = -9$</p>	<p>B_1 Award B_1 for -4</p> <p>B_1 Award B_1 for +5</p> <p>B_1 Award B_1 for -9</p>								
<p>b) <u>Mathematical sentence.</u></p> <div style="display: flex; align-items: center;"><div style="margin-right: 20px;">$w + x = y$ $+5 + -9 = -4$</div></div>	<p>m_1 Award m_1 for $w+x=y$</p> <p>A_1 Award A_1 for the correct sentence.</p>								

25.

P. 7	P. 6	P. 5
3	5	2

More ratio

$$5 - 3 = 2$$

2 parts rept 18 pupils

1 part repts $\frac{18}{2}$ pupils

1 part repts 9 pupils.

P. 7	P. 6	P. 5
3×9	5×9	2×9
27 pupils	45 pupils	18 pupils

B₁B₁ for 2B₁ for $\frac{18}{2}$ (division)m₁B₁ for 9:B₁ for 27B₁B₁ for 45B₁ for 18B₁B₁B₁

26.

a)

$$2^{3k} \div 8 = 1$$

$$2^{3k} \div 2^3 = 2^0$$

$$2^{3k-3} = 2^0$$

$$3k - 3 = 0$$

$$3k - 3 + 3 = 0 + 3$$

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

$$k = 1$$

$$\begin{array}{r} 8 \\ 2 \wedge 4 \\ 2 \wedge 2 \\ 2 \wedge 1 \end{array}$$

m₁Award m₁ for correct workingAward A₁ for the value of k as 1.A₁

b)

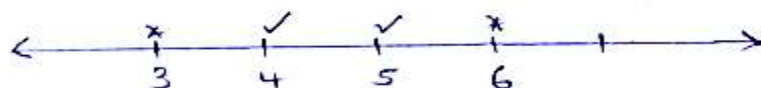
$$7 < 3p - 2 < 16$$

$$7 + 2 < 3p - 2 + 2 < 16 + 2$$

$$9 < 3p < 18$$

$$\frac{9}{3} < \frac{3p}{3} < \frac{18}{3}$$

$$3 < p < 6$$



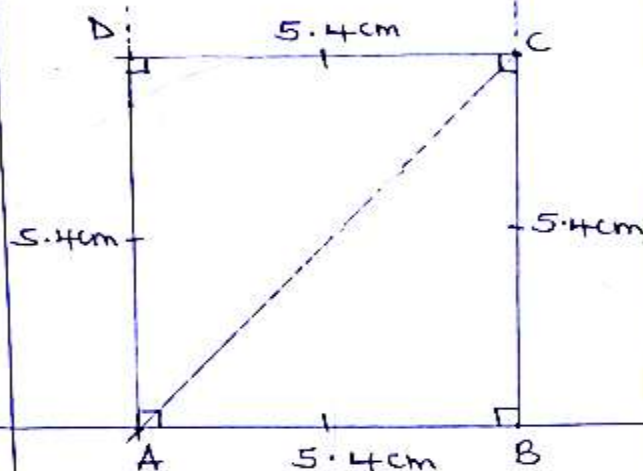
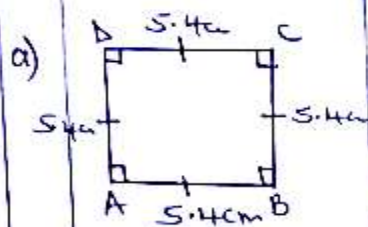
$$\text{Solution set} = \{4, 5\}$$

m₁Award m₁ for collecting like terms correctly.Award A₁ for $3 < p < 6$ A₁Award B₁ for the correct solution set.B₁

27.	<p>a) Meat</p> $\begin{array}{r} 7500 \\ \text{Sh. } 15,000 \times \frac{3}{2} \\ \hline \text{Sh. } 11,250 \\ \times 3 \\ \hline \text{Sh. } 22,500 \end{array}$ <p>a)</p>	<p>Sugar</p> $\begin{array}{r} 4800 \\ \text{Sh. } 14,400 \\ \hline 3 \\ \hline \text{Sh. } 4,800 \end{array}$	<p>Soap</p> $\begin{array}{r} 393 \\ \text{Sh. } 11,549 \\ \hline +3 \\ \hline 1 \end{array}$ <p>3 bars</p>	<p>B₁</p> <p>B₁</p> <p>B₁</p> <p>B₁</p>	<p>Award B₁ for each correct entry of</p> <p>* Sh. 22,500</p> <p>* Sh. 4,800</p> <p>* 3 bars of soap</p>
	<p>Total expenditure</p> $\begin{array}{r} \text{Sh. } 11,250 \\ \text{Sh. } 14,400 \\ + \text{Sh. } 22,500 \\ \hline \text{Sh. } 36,400 \end{array}$			<p>B₁</p>	<p><u>NB.</u> Remove one mark for a pupil who worked out very well and failed to enter the data in the table.</p> <p>* Sh. 36,400</p>
	<p>b) Money she had at first</p> $\begin{array}{r} \text{Sh. } 36,400 \\ + \text{Sh. } 03,600 \\ \hline \text{Sh. } 40,000 \end{array}$			<p>M₁</p> <p>A₁</p>	<p>Award M₁ for addition</p> <p>Award A₁ for Sh. 40,000</p>
28.	<p>Volume = Base area x Height</p> $V = \pi r^2 \times H$ $\frac{22}{7} \times 70\text{cm} \times 70\text{cm} \times 100\text{cm}$ $\frac{22}{7} \times 70\text{cm} \times 70\text{cm} \times 100\text{cm}$ $220\text{cm} \times 70\text{cm} \times 100\text{cm}$ $15400\text{cm}^2 \times 100\text{cm}$ 1540000cm^3 <p>Capacity</p> <p>1 litre = 1000 cm³</p> $\frac{1540000\text{cm}^3}{1000\text{cm}^3}$ <p>1540 litres</p> <p>Water needed to fill the tank</p> $\frac{5}{5} - \frac{4}{5}$ $\frac{5-4}{5}$ $\frac{1}{5}$			<p>M₁</p> <p>A₁</p> <p>B₁</p> <p>B₁</p> <p>B₁</p>	<p>Award M₁ for correct working.</p> <p>Award A₁ for 1540,000 cm³</p> <p>Award B₁ for 1540 litres</p> <p>Award B₁ for $\frac{1}{5}$</p> <p>Award B₁ for 308 litres.</p> <p>for</p> <p>Reject wrong units.</p>
	$\frac{1}{5} \times 1540\text{ litres}$ <p>308 litres</p>			<p>B₁</p> <p>B₁</p>	

29.	<p>Bad eggs Good eggs Total</p> <p>20% (100-20) = 80% 100%</p> <hr/> <p>36 45</p> <p>a) 100%, rept 45-eggs 1%, rept $\frac{45}{100}$ egg</p> <p>Good eggs</p> $\begin{array}{r} 45 \\ 100 \overline{) 45} \\ \underline{40} \\ 50 \\ \underline{45} \\ 50 \end{array}$ <p>9 x 4 eggs 36 good-eggs</p>	<p>B₁ Award B₁ for 80% or $\frac{4}{5}$</p> <p>Award m₁ for correct working.</p> <p>m₁ Award A₁ for 36.</p> <p>A₁</p>						
b)	$\begin{array}{r} 45 \text{ eggs} \\ - 36 \text{ good eggs} \\ \hline 9 \text{ bad eggs} \end{array}$ <p>$\frac{9}{45}$ $\frac{1}{5}$</p>	<p>B₁ B₁ for 9 bad-eggs</p> <p>B₁ B₁ for $\frac{1}{5}$</p>						
30.	<p>Consider the cost of a pencil as W.</p> <table border="1"> <thead> <tr> <th>Pencil</th> <th>pen</th> <th>book</th> </tr> </thead> <tbody> <tr> <td>W</td> <td>2W</td> <td>2w + sh.1200</td> </tr> </tbody> </table> <p>sh. 900</p> <p> $w + 2w = \text{sh. } 900$ $3w = \text{sh. } 900$ $\frac{3w}{3} = \frac{\text{sh. } 900}{3}$ $w = \text{sh. } 300$ </p> <p>Cost of 2 books</p> <p> $(2w + \text{sh. } 1200) \times 2$ $(2 \times \text{sh. } 300 + \text{sh. } 1200) \times 2$ $(\text{sh. } 600 + \text{sh. } 1200) \times 2$ $\text{sh. } 1800 \times 2$ $\text{sh. } 3,600$ </p>	Pencil	pen	book	W	2W	2w + sh.1200	<p>B₁ Award B₁ for the correct table.</p> <p>Award m₁ for the correct formation of the equation.</p> <p>m₁ Award A₁ for sh.300</p> <p>A₁ Award m₁ for correct working.</p> <p>m₁ Award A₁ for sh. 3,600</p> <p>A₁</p>
Pencil	pen	book						
W	2W	2w + sh.1200						

31 Sketch



S_1 S_1 for sketch showing all the information.

L_1 L_1 for 5.4 cm

C_1 for area of 90°

C_1 for area of 90°

B_1 for 7.7 cm or 7.8 cm or 7.6 cm

b) $AC = 7.7 \text{ cm}$
 $\begin{matrix} +0.1 \\ -0.1 \end{matrix}$

Accept 7.7 cm } we only accept 7.6 cm
 7.6 cm } or 7.8 cm if every
 7.8 cm } information on the
 accurate diagram is correct.

32. a) Distance before the Jam.

$$D = S \times T$$

$$D = 50 \frac{\text{km}}{\text{hr}} \times 2 \text{ hrs}$$

$$D = 100 \text{ km}$$

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

Distance from traffic Jam to town.

$$D = S \times T$$

$$\frac{32 \text{ km}}{\text{hr}} \times \frac{5 \text{ hrs}}{2} = 80 \text{ km}$$

Scale on y-axis

2 boxes rept 20 km

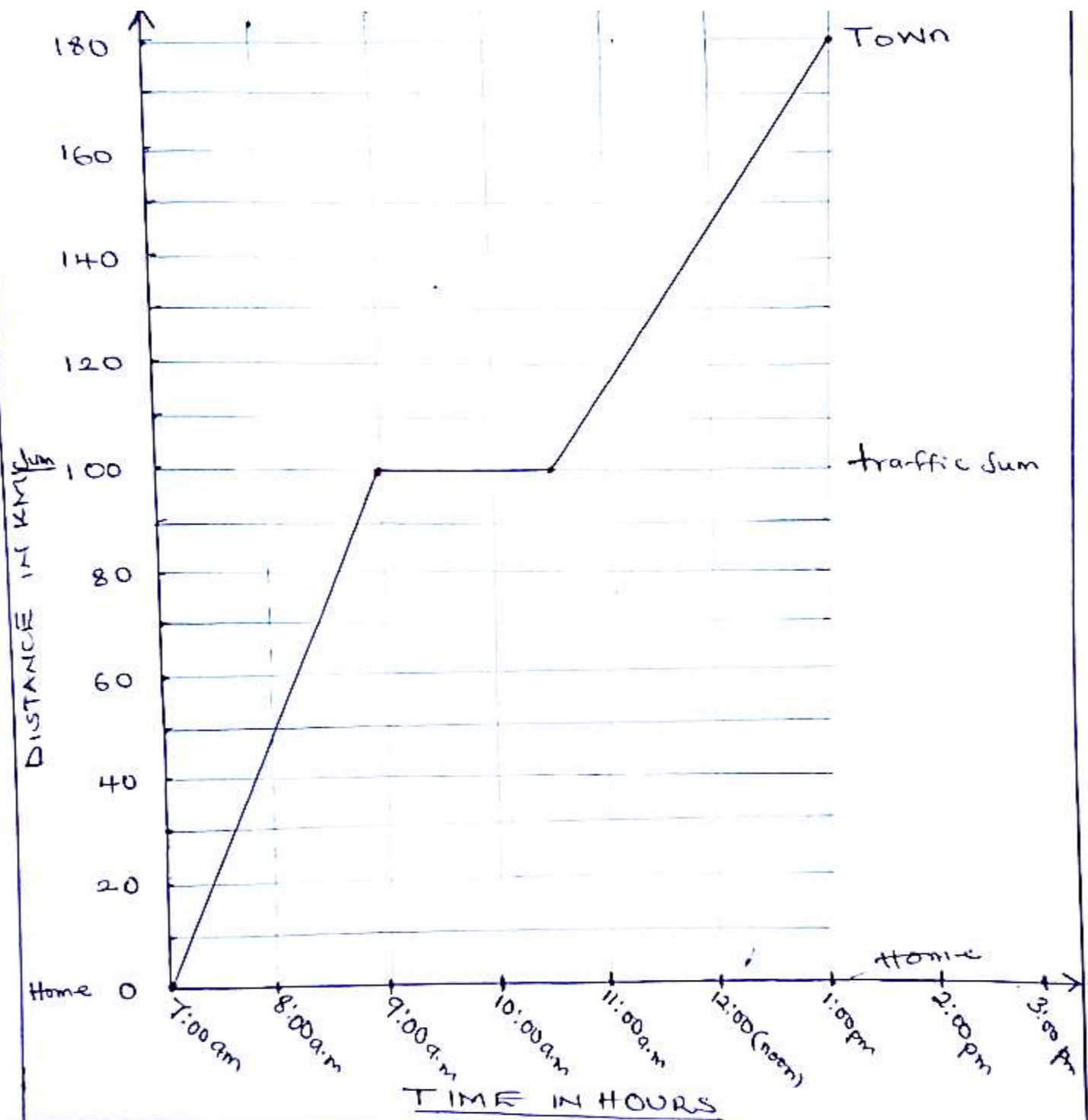
1 box rept $\frac{20}{2}$ km

1 box rept 10 km

5 small boxes rept 10 km

1 small box rept $\frac{10}{5}$ km

1 small box rept 2 km



b) Average speed

$$\frac{\text{T.D.C}}{\text{T.T.T}}$$

$$\frac{100 \text{ km} + 80 \text{ km}}{2 \text{ hrs} + 1\frac{1}{2} \text{ hrs} + 2\frac{1}{2} \text{ hrs}}$$

$$\frac{180 \text{ km}}{6 \text{ hrs}}$$

$$\frac{30}{180 \text{ km}}$$

$$\frac{1}{6 \text{ hrs}}$$

$$\frac{30 \text{ km}}{\text{hr}}$$

M1

for correct working.

A1

for 30 km/hr.

END