DEC MTC GUIDE PRE PLE SET 2, 2022

SECTION A: 40 MARKS

1.

$$\begin{array}{r} 23 \\ \times\ 3 \\ \hline 69 \end{array}$$

$3 \times 3 = 9$

$2 \times 3 = 6$

2.

Ninety thousand	forty
90,000	40

$$\begin{array}{r} 90{,}000 \\ +\ \ \ 40 \\ \hline 90{,}040 \end{array}$$

3.

$4y - 3(y - 1)$

$4y - 3y + 3$

$y + 3$

4. Letters of the English alphabet

$a, b, c \ldots\ldots X, Y, Z$

$Q = \{X, Y, Z\}$

Proper subsets

$\{\}, \{X\}, \{Y\}, \{Z\}$

$\{X, Y\}\ \{X, Z\}\ \{Y, Z\}$

5.

$$\begin{array}{r} 4\ \overset{2}{3}\ \overset{7}{2}_{five} \\ -\ 1\ \ 1\ \ 3_{five} \\ \hline 3\ \ 1\ \ 4_{five} \end{array}$$

$5 + 2 = 7$

$7 - 3 = 4$

$2 - 1 = 1$

$4 - 1 = 3$

6.

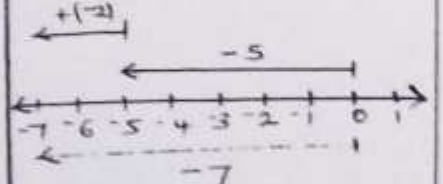
$1m = 100cm$

$4.5m = 4.5 \times 100cm$

$4.5m = \frac{45}{10} \times 100cm$

$4.5m = 450cm$

7.



$\therefore -5 + -2 = -7$

8.

$55.5 - 2.03 + 0.05$

BODMAS

$55.50 + 0.05 = 55.55$

$55.55 - 2.03 = 53.52$

9. Consider the correct measure got using a protractor only in degrees.

10.

$$\frac{\text{Sum of data}}{\text{Number of data}} = \text{mean}$$

$$\frac{2.5 + 0.3 + k + 1.9 + 0.6}{4} = 1.7$$

$$\frac{5.3 + k}{4} = 1.7$$

$$\frac{1}{4}(5.3 + k) = 1.7 \times 4$$

$$5.3 + k = 6.8$$

$$5.3 - 5.3 + k = 6.8 - 5.3$$

$$k = 1.5$$

11.

$$\frac{6n}{5} = n + 3$$

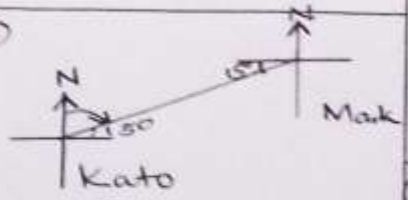
$$\frac{6nr^1s^1}{5_1} = (n + 3)^1 5$$

$$6n = 5n + 15$$

$$6n - 5n = 5n - 5n + 15$$

$$n = 15$$

12.



Bearing of Mark from Kato

$$\begin{array}{r} 090^\circ \\ -\ 015^\circ \\ \hline 075^\circ \end{array}$$

13. HCF of 24 and 36

2	24	36
2	12	18
3	6	9
	2	3

$HCF = 2 \times 2 \times 3$

$HCF = 4 \times 3$

$HCF = 12$

14. Cost of 1 water melon

Sh. 12,000 / 6

Sh. 4,000

Number of water mellons bought with Sh 28,000

Sh. 28,000 / Sh. 4,000

7 water mellons.

15.

Range = Highest − lowest

$-5^\circ C - (-7^\circ C)$

$-5^\circ C + 7^\circ C$

$2^\circ C$

16.

$\frac{1}{8} \times 100\%$ | $2\frac{1}{2}$

$\frac{1}{8} \times \frac{25}{100}\%$ | $12\frac{1}{2}\%$

$12\frac{1}{2}\%$ or 12.5%

17. Number of bottles

$$\begin{array}{r} 24 \\ \times\ 5 \\ \hline 120 \end{array}$$

$120 \times 30ml$

$3600ml$

1000ml = 1litre

$\frac{3600ml}{1000ml}$

3.6 litres of soda.

18 $3\frac{1}{2}$ kg to grams.

1kg = 1000g

$3\frac{1}{2}$ kg = 1000g × $3\frac{1}{2}$

$3\frac{1}{2}$ kg = $3\frac{1}{2}$ × 1000g

$\frac{7}{2}$ × 1000g

3500g

Number of sackets

$\frac{3500g}{250g}$

14

1 sacket costs sh. 5000

14 sackets cost sh. 5000 × 14

sh. 14000 × 5

sh. 70,000

∴ She paid sh. 70,000 for all the sackets.

19. 12:40 a.m

12:40 a.m

− 12 00 hrs

00 40 hrs

20 9 litres cover 27km

1 litre covers $\frac{27}{9}$ km

1 litre covers 3km

15 litres cover (15 × 3)km

45km

∴ The same taxi will cover a distance of 45km.

SECTION B

21.

Mark	Tally	Total Mark
40	////	160
30	~~////~~	150
75	////	300
60	//	120
		730

30 + 50 = 80

60 × 2 = 120

160 + 150 + 120 = 430

730 − 430 = 300

300 ÷ 75 = 4

22 a) 10:20 a.m − 9 10 a.m = 1 10

1 hour and 10 minutes.

b) 9:10 a.m − 8 50 a.m = 20 min

10:30 a.m − 10:20 a.m = 10 min

Total time

20 minutes + 10 minutes = 30 minutes.

c) Total time

1:15 p.m − 8:00 a.m

1:15 pm + 12 00 hrs = 13 15 hrs

13 15 hrs − 8 00 a.m = 5 15

5 $\frac{15}{60}$ hours.

5 $\frac{1}{4}$ hours.

Average speed

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

630km ÷ 5 $\frac{1}{4}$ hrs

630km ÷ $\frac{21}{4}$ hrs

630km × $\frac{4}{21 hrs}$

30 × 4 = 120

120 $\frac{km}{hr}$

23 a)

2p + 4 + p − 1 = 18

2p + p + 4 − 1 = 18

3p + 3 = 18

3p + 3 − 3 = 18 − 3

3p = 15

$\frac{3p}{3}$ = $\frac{15}{3}$

p = 5

Volleyball only

p + 6 players

5 + 6 players

11 players

b) Football

2p + 4 + p + 2

(2×5) + 4 + 5 + 2

10 + 11

21

n(E) = 21 + p + 6 + p − 1

21 + 5 + 6 + 5 − 1

21 + 15

36

Probability

$\frac{n(A.C)}{n(T.C)}$

$\frac{21}{36}$

24.

3	4
3 × GCT	4 × GCI
3 × 10	4 × 10
30 minutes	40 minutes

Lowest Common Interval.

2	60	40
2	15	20
2	15	10
3	15	5
5	5	5
	1	1

$2 \times 2 \times 2 \times 3 \times 5$
$4 \times 10 \times 3$
120 minutes.

60 minutes = 1 hr
1 minute = $\frac{1}{60}$ hr
120 min = $\frac{2}{120} \times \frac{1}{60}$ hr
= 2 hours.

Next time
11:30 a.m
+ 2 00 hrs
13 30 hrs
OR
13 30 hrs
− 12 00 hrs
1:30 p.m

C. oil

Sh. 21,000
Sh. 10,000
+ Sh. 06750
Sh. 37,750

Sh. 64750
− Sh. 37750
Sh. 27,000

Sh. 27,000 / 3
Sh. 9,000

(b) Discount

$\frac{20}{100} \times$ Sh. 6475
Sh. 6475 × 2
Sh. 12,950

Amount paid

Sh. 64750
− Sh. 12,950
Sh. 51,800

25.

Meat	Rice
Sh. 14000 × 2/2	Sh. 10000 ÷ 5/2
Sh. 7000 × 3	Sh. 10,000 × 2/5
Sh. 21,000	Sh. 4,000

Sugar
Sh. 67.5
Sh. 3000 / 60
$\frac{27}{12} = 2\frac{1}{4}$ kg

26) Consider the int exterior angle as y.

Exterior ∠	interior ∠	Total
y	3 × y	180°
y	3y	180°

$y + 3y = 180°$
$4y = 180°$
$\frac{4y}{4} = \frac{180°}{4}$
$y = 45°$

Number of Sides
360° / 45°
8 Sides

Int. ∠ sum = 180° (n − 2)
180° (8 − 2)
180° × 6 triangles
1080°

180 × 6
1080°

27)

Area of the rectangular compound.

l × w
28m × 14m
392 m²

28 × 14
112
280
392

Area of the semi-circle

$\frac{1}{2} \pi r^2$
$\frac{1}{2} \times \frac{22}{7} \times 14m \times 14m$
$\frac{1}{2} \times \frac{22}{7} \times 14m \times 14m$
22m × 14m
308 m²

22 × 14
88
220
308

Area of the green vegetables
392 m² − 308 m²
84 m²

∴ The area covered by green vegetables is 84 sq. m.

28. Added fraction

$\frac{4}{5} - \frac{3}{4}$ (LCM = 20)

$\frac{\frac{4}{5} \times 20^{4} - \frac{3}{4} \times 20^{5}}{20}$

$\frac{16 - 15}{20}$

$\frac{1}{20}$

1 part repts 12.5 litres

20 parts rept 20×12.5 litres

$20 \times \frac{125}{10}$ litres

250 litres

$\begin{array}{r} 12\frac{1}{2}5 \\ \times \quad 2 \\ \hline 250 \end{array}$

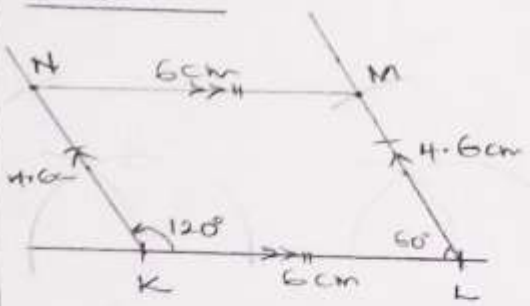
Milk in the Container now

$\frac{4}{5} \times 250$ litres

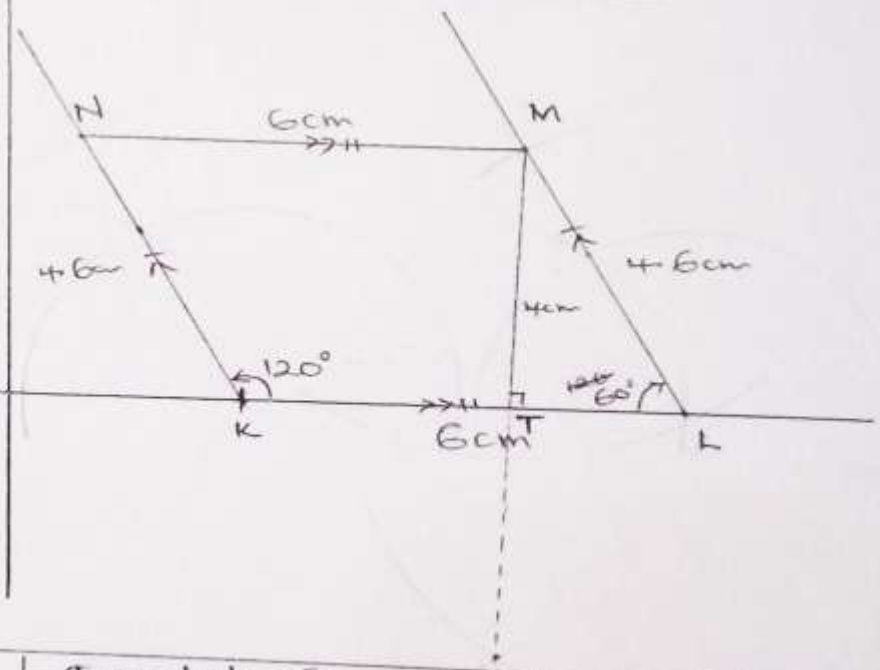
4×50 litres

200 litres.

29. Sketch



Accurate diagram



b) Area

Base line × Height

6cm × 4cm

24 cm^2

30.

a)	MTN	Airtel	Lyca	Fraction for Lyca
	25%	$\frac{1}{5}\cancel{0} \times \frac{57\frac{1}{2}}{1\cancel{0}\cancel{0}_{2}}$ %	$\begin{array}{r} 6 \\ 7\cdot 5 \\ -37\frac{1}{2} \\ \hline 38 - \frac{1}{2} \end{array}$	$37\frac{1}{2}$ %
	Remainder	$37\frac{1}{2}$ %	$37\frac{1}{2}$ %	$\frac{75}{2} \div \frac{100}{1}$
	100 − 25			$\frac{75}{2} \times \frac{1}{100_{4}}$
	75			

$\frac{3}{2}$ × $\frac{1}{4}$

$\frac{3}{8}$

$\begin{array}{r} {}^{2}\cancel{3}2,000,000 \\ -8,000,000 \\ \hline 24,000,000 \end{array}$

b)

MTN	Airtel	Lyca
$\frac{25}{1\cancel{0}\cancel{0}} \times 32,000,0\cancel{0}\cancel{0}$	$\frac{50}{1\cancel{0}\cancel{0}} \times 24,000,0\cancel{0}\cancel{0}$	24,000,000
$25 \times 320,000$	12,000,000	−12,000,000
8,000,000	customers	12,000,000
customers		customers

$\begin{array}{r} {}^{1}32 \\ \times 25 \\ \hline 160 \\ +64 \\ \hline 800 \end{array}$

$\begin{array}{r} 24 \\ \times 5 \\ \hline 120 \end{array}$

31. a) $5 - x > 2$

$5 - 5 - x > 2 - 5$

$-x > -3$

$\frac{-x}{-1} < \frac{-3}{-1}$

$x < 3$

(b) Consider the years to come as m.

Max	Daniel	
5	25	Now
$5+m$	$25+m$	Future

$2(5+m) = 25+m$

$15+3m = 25+m$

$15-15+3m = 25-15+m$

$3m = 10+m$

$3m - m = 10m$

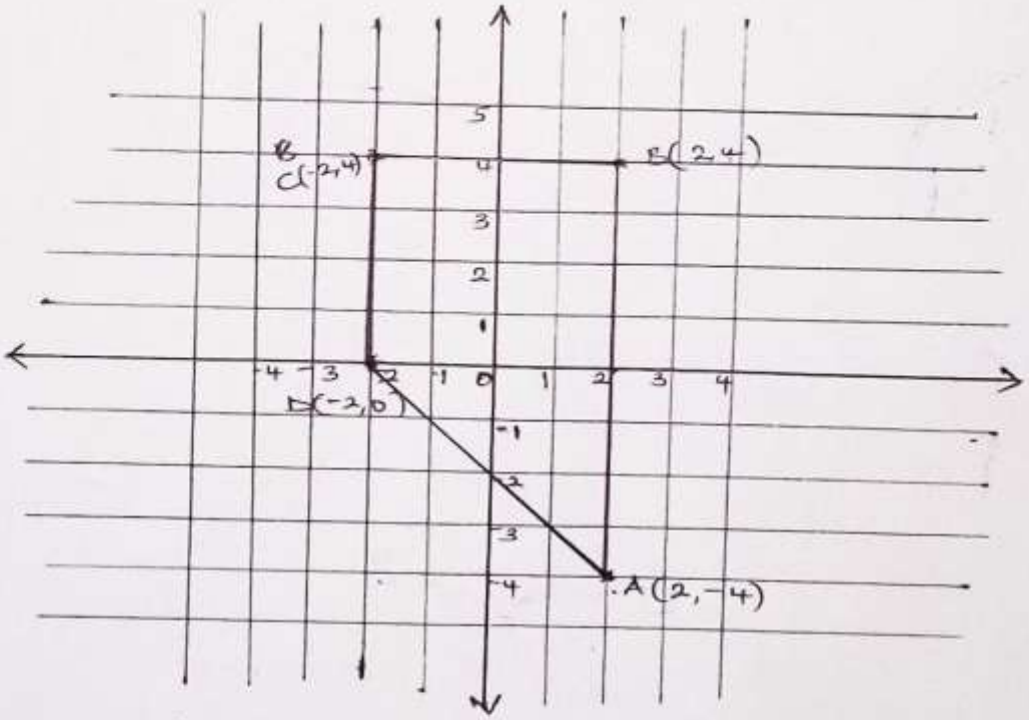
$2m = 10$

$\frac{1}{2}m = \frac{10}{2}$

$m = 5$

∴ After 5 years, Daniel's age will be thrice as old as Max.

32



c. Area of the figure

$\frac{1}{2} h (a + b)$

$\frac{1}{2} \times 4\text{cm} (4\text{cm} + 8\text{cm})$

$2\text{cm} (12\text{cm})$

$24\ \text{cm}^2$