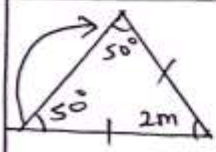
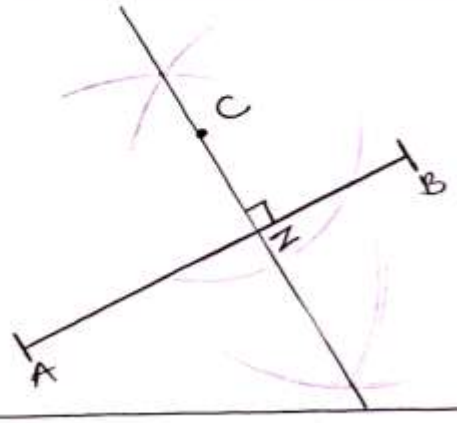
DIVINE EDUCATION CENTRE

P.7 MTC E.O.T ONE MARKING GUIDE.

QN	SOLUTION	MKS	PROFESSIONAL ADVISE
1.	$(6 \div 2) + (4 \div 2)$ $(6+4) \div 2$ $10 \div 2$ 5	M1 A1	Award M1 for correct method Award A1 for 5
2.	T O t h 4 7. 2 5 $(4 \times 10) + (7 \times 1) + (2 \times \frac{1}{10}) + (5 \times \frac{1}{100})$ $(4 \times 10^1) + (7 \times 10^0) + (2 \times 10^{-1}) + (5 \times 10^{-2})$	M1 A1	Award M1 for correct working. Award A1 for correct expansion of the number using exponential.
3.	$m = +3$ $n = -2$	B1 B1	Award B1 for $m = +3$ Award B1 for $n = -2$
4.	 $2m + 50° + 50° = 180°$ $2m + 100° = 180°$ $2m + 100° - 100° = 180° - 100°$ $2m = 80°$ $\frac{2m}{2} = \frac{80°}{2}$ $m = 40°$	M1 A1	Award M1 for correct working Award A1 for 40°.
5.	ff f o 2 4 1 five $4 \times 5 = 20$	M1 A1	Award M1 for correct working. Award A1 for 20.
6.	$0.75 \div 0.4$ $\frac{75}{100} \div (\frac{4}{10})$ $\frac{15}{\cancel{75}} \times \frac{\cancel{10}}{4}$ $\cancel{100}\ 2$ $\frac{15}{2} \times \frac{1}{4}$ $\frac{15}{8}$ $1\frac{7}{8}$ OR 1.875	M1 A1	M1 for correct method. A1 for $1\frac{7}{8}$ or 1.875
7.	$k^2 - m$ $k \times k - m$ $m \times m \times m \times m - m$ $-3 \times -3 \times -3 \times -3 - -3$ $+9 \times +9 - -3$ $81 - (-3)$ $81 + 3$ 84	M1 A1	Award M1 for correct substitution. Award A1 for 84.

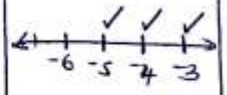
QN	SOLUTION	MARKS	PROFESSIONAL ADVISE
8.	P Q b a m n e t $P = \{b, e, a, n\}$	B_1 B_1	Award B_1 for correct identification of set P. NB. Reject with no; - curly brackets - commas Award B_1 for listing members of set P.
9.		C_1 C_1	Award C_1 for all the arcs leading to the perpendicular line. Award C_1 for the perpendicular line.
10.	11:40 PM +12 00 hrs 23 40 hours	B_1 B_1	B_1 for 11:40 p.m B_1 for 2340 hours
11.	Blue | Red | Total 4 | 5 | 9 16 4 Shares rept 16 pens 1 Share repts $\frac{16}{4}$ pens 1 Share repts 4 pens Total (4 x 9) pens 36 pens	 B_1 B_1	B_1 for 4 pens B_1 for 36 pens
2.	LCM 2 | 6 | 9 3 | 3 | 9 3 | 1 | 3 1 | 1 LCM = 2x3x3 = 18 Smallest No LCM + Rem 18 + 2 20 books	M_1 A_1	Award M_1 for correct method. Award A_1 for 20 books.

QN	SOLUTION	MARKS	PROFESSIONAL ADVISE
13.	Buying price for each egg. 30 eggs cost sh. 9600 1 egg costs Sh. $\frac{9600}{30}$ = 320 1 egg costs Sh. 320 Profit on 1 egg Sh. 500 − Sh. 320 Sh. 180 Profit for all eggs Sh. 180 × 30 Sh. 5,400 (1800 × 3 = 5400)	M1 A1	Award M1 for correct working. Award A1 for Sh. 5,400
14.	1(3y + 1) − 1(y − 2) 3y + 1 − y + 2 3y − y + 1 + 2 2y + 3	M1 A1	Award M1 for correct removing of the brackets. Award A1 for the expression 2y + 3.
15.	Days workers 15 days need 4 workers 1 day needs (15×4) workers 10 days will need $\left(\frac{15\times4}{10}\right)$ workers 3×2 workers 6 workers	M1 A1	Award M1 for correct working. Award A1 for 6 workers.
16.	7 chairs are represented by 1 pic $\left(\frac{42 \text{ chairs}}{7 \text{ chairs}}\right)$ pictures 6 pictures ∴ 6 pictures will represent 42 chairs.	M1 A1	Award M1 for division Award A1 for 6 pictures.

QN	SOLUTION	MARK	PROFESSIONAL ADVISE
17.	Ugsh. $\frac{3500}{7500\phi}$ $\frac{5\phi}{1}$ Ugsh. 3500 ∴ 1 USD = ugsh. 3,500	M1 A1	M1 for division A1 for sh. 3,500
18.	Capacity = $\frac{\text{Volume}}{1000\ cm^3}$ Volume = Base area × H. Capacity = $\frac{1386\ cm^2 \times 50cm}{1000\ cm^3}$ $\frac{1386\ cm^2 \times 5\phi cm}{100\phi\ cm^3}$ $\frac{6930}{10\phi}$ 69.3 litres $1386 \times 5 = 6930$	 M1 A1	Award m1 for correct working Award A1 for 69.3 litres.
19.	Days of the week Sun | Mon | Tue | Wed | Thur | Fri | Sat 0 | 1 | 2 | 3 | 4 | 5 | 6 Today + days = Day (mod 7) 4 + 30 = – (mod 7) $\frac{34}{7}$ = 4 rem 6 (mod 7) = 6 (mod 7) Since 6 represents Saturday ∴ The day will be Saturday.	 M1 A1	Award m1 for correct working. Award A1 for ~~Satt~~ Saturday.
20.	Side of the window 100cm – 10cm 90cm Length of the curtain 90cm + 30cm 120 cm Area of the curtain L × W 120cm × 100cm 12,000 cm^2	 B1 B1	Award B1 for length of the curtain as 120cm. Award B1 for area of the curtain as 12,000 cm^2

QN	SOLUTION	MARK	PROFESSIONAL ADVISE
21	a) $32_y = 17_{ten}$ $(3\times y^1) + (2\times y^0) = 17$ $3\times y + 2\times 1 = 17$ $3y + 2 = 17$ $3y + 2 - 2 = 17 - 2$ $3y = 15$ $\frac{3y}{3} = \frac{15}{3}$ $y = 5$	m1 m1 A1	Award m1 for correct method. Award m1 for division. Award A1 for the value of y as 5.
	b) $4\,3\,6_{five} - 1\,2\,3_{five} = 3\,0\,3_{five}$ $1 - 3$ $(1+5) - 3$ $6 - 3 = 3$ $2 - 2 = 0$ $4 - 1 = 3$	m1 A1	Award m1 for correct method. Award A1 for 303_{five}. Accept 303_5
22	Common interval 2 | 40 | 30 2 | 20 | 15 2 | 10 | 15 3 | 5 | 15 5 | 5 | 5 1 | 1 $2\times2\times2\times3\times5$ $4\times6\times5$ 4×30 120 minutes 60 minutes = 1 hr 1 minute = $\frac{1}{60}$ hr 120 minutes = $(\frac{1}{60}\times120^2)$ hr $= 1\times2$ hours $= 2$ hours	m1 B1 m1 A1	Award; m1 for prime factorisation B1 for 120 minutes m1 for division A1 for 2 hours
23. a)	$w+7+5+2w+9+2 = 47$ $3w + 23 = 47$ $3w + 23 - 23 = 47 - 23$ $3w = 24$ $\frac{3w}{3} = \frac{24}{3}$ $w = 8$	m1 A1	Award; m1 for correct formation of the equation A1 for 8.
b)	Fanta $2w + 9 + 5$ $2w + 14$ $2\times8 + 14$ $16 + 14$ 30 pupils	m1 A1	Award; m1 for correct substitution A1 for 30
c)	Mirinda only $w + 7$ $8 + 7$ 15 Probability $\frac{n(E)}{n(ss)}$ $\frac{15}{47}$	B1 B1	Award; B1 for 15 B1 for $\frac{15}{47}$

N	SOLUTION	MRK	PROFESSIONAL ADVISE
24.	a) $\frac{4}{10} \times \frac{6}{10} \div \frac{12}{100}$ $\left(\frac{4}{10} \times \frac{6}{10}\right) \div \left(\frac{12}{100}\right)$ $\frac{4^2}{10} \times \frac{6^1}{10} \times \frac{100^{10}}{12_1}$ $\frac{2}{1} \times \frac{1}{1} \times \frac{10}{1}$ $0.37 - 0.25 = 0.12$ $\frac{2}{1}$ 2	m1 m1 A1	Award; m_1 for common fractions m_1 for reciprocal A1 for 2
	b) $\frac{12}{18} \div \frac{12 \div 6}{18 \div 6}$ $\therefore \frac{12}{18} = \frac{2}{3}$	m1 A1	Award m1 for division Award A1 for $\frac{2}{3}$
25.	a) Sugar: Sh. 4800 x 2 = Sh. 9,600 Meat: Sh. $15000 \times \frac{3}{2}$ = Sh. 22,500 Total Expenditure Sh. 22,500 Sh. 09 600 + Sh. 17,400 Sh. 49,500	B1 B1 B1	Award; B_1 for sh. 9,600 B_1 for 22,500 B_1 for sh. 49,500
	b) Sh. 49 500 + Sh. 00 200 = Sh. 49,700 Balance: Sh. 50,000 - Sh. 49 700 = Sh. 00 300 Sh. 300	m1 A1	Award; m1 for correct method (subtraction) A1 for sh. 300
26	a) Consider the number as k $\frac{2}{3}k - 1 = 4 - k$ $\frac{2}{3}k - 1 + 1 = 4 + 1 - k$ $= (5 - k) \times 3$ $3 \times \frac{2}{3}k$ $2k = 15 - 3k$ $2k + 3k = 15 - 3k + 3k$ $5k = 15$ $\frac{5k}{5} = \frac{15}{5}$ $k = 3$	m1 A1	Award; m1 for correct formation of the equation. A1 for the number which is 3.

QN	SOLUTION	MRK	PROFESSIONAL ADVISE
b)	$8 \leq -2(p-1)$ $8 \leq -2p + 2$ $8-2 \leq -2p + 2 - 2$ $6 \leq -2p$ $\frac{6}{-2} \geq \frac{-2p}{-2}$ $-3 \geq p$ Solution set: $\{-3, -4, -5\}$ $p \leq -3$  	m1 A1 B1	Award; m1 for removing the brackets. A1 for $p \leq -3$ B1 for the solution set.
27.	1kg = 1000g 6.5kg = $(\frac{6.5}{1\cancel{0}} \times 100\cancel{0})$g 6.5kg = 6500g Sh. 34000 × 13 102000 + 340000 Sh. 442,000 Number of tins: $\frac{6500}{500}$ = 13 tins	B1 m1 A1 m1 A1	Award; B1 for 6500g m1 for division A1 for 13 tins m1 for multiplication A1 for Sh. 442,000
28.	P = A − S.I P = Sh. 315,000 − Sh. 015,000 P = Sh. 300,000 $\text{Time} = \frac{S.I \times 100}{P \times R}$ $\text{Time} = \frac{Sh.15,000 \times 100}{Sh.300,000 \times 10}$ Time = $\frac{1}{2}$ year Time = $\frac{1}{2} \times 12$ months 1×6 months Time = 6 months.	m1 A1 m1 m1 A1	Award; m1 for correct method A1 for Sh. 300,000 m1 for correct method m1 for conversion of $\frac{1}{2}$ year to months. A1 for 6 months.

QN	SOLUTION	MARK	PROFESSIONAL ADVISE
29.	Consider the cost of a watermelon as W.		Award;
			m1 for correct formation of the equation.
		m1	m1 for division
			A1 for 5000
		m1	B1 for 3000
		A1	
		B1	
30		B1	Award;
			B1 for glasses on each side of the window.
		B1	B1 for 25 glasses needed in each window.
		B1	B1 for 100 glasses needed in all the four windows
		m1	m1 for correct working
		A1	A1 for Sh. 500,000

Watermelon	Pineapple	Total
W	W − Sh. 2000	
W	2(W − Sh. 2000)	Sh. 11,000

$W + 2(W - Sh.2000) = Sh.11,000$

$W + 2W - Sh.4000 = Sh.11,000$

$3W - Sh.4000 = Sh.11,000$

$3W - Sh.4000 + Sh.4000 = Sh.11,000 + Sh.4000$

$3W = Sh.15,000$

$\frac{3W}{3} = Sh.\frac{5000}{3}\frac{15,000}{1}$

$W = Sh.5,000$

Cost of a Pineapple

W − Sh. 2000

Sh. 5000 − Sh. 2000

Sh. 3000

Number of glasses needed

Each side of the window

160 cm

32 cm

$\frac{5}{160}$

$\frac{32}{1}$

5 glasses

Each window

(5 × 5) glasses

25 glasses

1 window = 25 glasses

4 windows = (25 × 4) glasses

100 glasses

Total cost

Sh. 5000 × 100

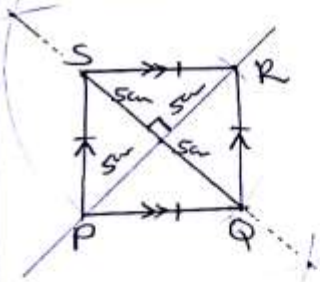
Sh. 500,000

ON	SOLUTION	MARKS	PROFESSIONAL ADVISE
31. a)	$2p + 40^\circ + 150^\circ + 90^\circ = 360^\circ$ $2p + 280^\circ = 360^\circ$ $2p + 280^\circ - 280^\circ = 360^\circ - 280^\circ$ $2p = 80^\circ$ $\frac{2p}{2} = \frac{80^\circ}{2}$ $p = 40^\circ$	m1 A1	Award; m1 for correct formation of the equation. A1 for $p = 40^\circ$
b)	360° rept 180 candidates 1° repts $\frac{180}{360}$ candidate 1° repts $\frac{1}{2}$ candidate	B1 B1 B1	Award; B1 for 45 candidates B1 for 60 candidates B1 for 75 candidates

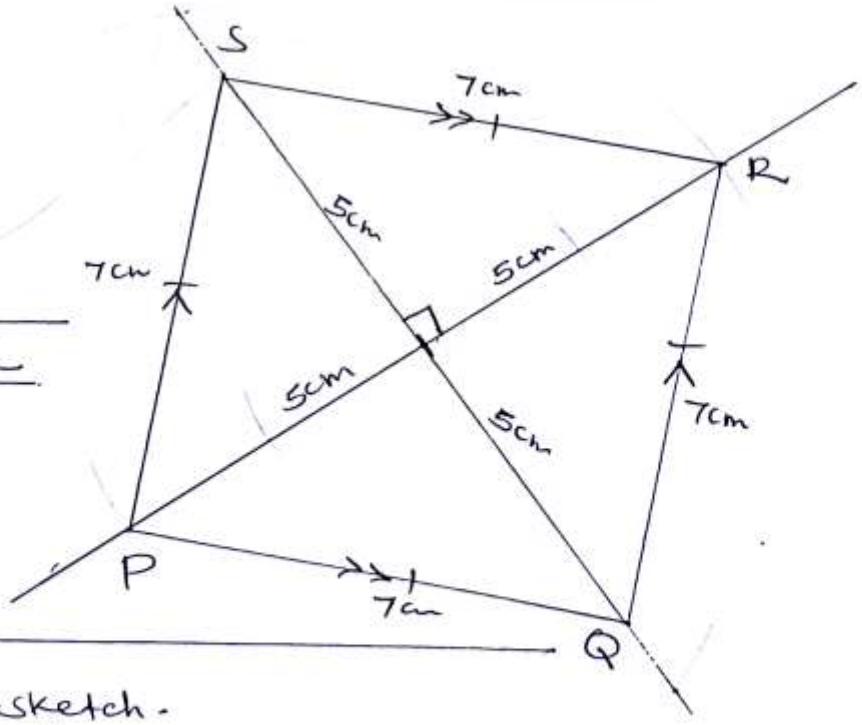
DIV 1	DIV 2	DIV 3
$\frac{1}{2} \times \frac{45}{90}$	$2p + 40^\circ$ $2 \times 40 + 40$ $80 + 40^\circ$ 120°	$\frac{1}{2} \times \frac{75}{150}$
45 candidates	$\frac{1}{2} \times \frac{60}{120}$ 60 candidates	75 candidates

32 Sketch

a)



Accurate diagram



b) Total distance

4 sides

$4 \times 7\text{cm}$

28 cm

Award;
S1 for detailed sketch.
C1 for arcs leading to the perpendicular line (90°)
L1 for 5cm on line PR
L1 for 5cm on line SQ
~~m1 for correct working~~
A1 for 28cm.