

FORM 1
MATHEMATICS MARKING SCHEME

$$\begin{array}{r}
 1. \\
 4,632 \\
 + 273 \\
 7,105 \\
 \hline
 90,438 \\
 102,448
 \end{array}$$

Roundry off
102,448
= 102,000

2.

$$\begin{array}{l}
 \text{First } \frac{1}{4} \\
 \text{Second} = \frac{1}{6} \times \frac{3}{4} = \frac{1}{8} \\
 \text{Third} = \frac{1}{6} \times \frac{3}{4} = \frac{1}{8}
 \end{array}$$

$$\begin{array}{l}
 \text{Forth } \frac{1}{6} \times \frac{3}{4} = \frac{1}{8} \\
 \text{Second} = 1 - \left(\frac{1}{4} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} \right) \\
 \text{Third} = 1 - \frac{5}{8} = \frac{3}{8}
 \end{array}$$

$$\begin{array}{l}
 \text{if } \frac{3}{8} = 3ha \\
 \therefore \frac{8}{8} \\
 \frac{8}{8} \times 3 \times \frac{8}{3} \\
 = 8ha
 \end{array}$$

3.

$$\begin{array}{l}
 \frac{3}{4} + \frac{1}{2} \text{ of } \left(\frac{2}{3} - \frac{3}{7} \right) \div \frac{3}{5} \times \frac{4}{5} \\
 \frac{2}{3} - \frac{3}{7} = \frac{14-9}{21} = \frac{5}{21} \\
 \frac{3}{4} + \frac{1}{2} \times \frac{5}{21} \div \frac{3}{5} \times \frac{4}{5}
 \end{array}$$

$$\begin{array}{l}
 \frac{3}{4} + \frac{5}{42} \times \frac{5}{3} \times \frac{4}{3} \\
 = \frac{3}{4} + \frac{10}{63}
 \end{array}$$

$$\begin{array}{l}
 = \frac{189740}{252} \\
 = \frac{229}{252}
 \end{array}$$

4. a)

$$\begin{array}{l}
 4480 = 2 \times 2240 \\
 = 2 \times 2 \times 1120 \\
 = 2 \times 2 \times 2 \times 560 \\
 = 2 \times 2 \times 2 \times 2 \times 280 \\
 = 2 \times 2 \times 2 \times 2 \times 2 \times 140 \\
 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 70 \\
 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 35 \\
 = 2^7 \times 5 \times 7
 \end{array}$$

b)

$$\frac{3024}{1008} \times \frac{1512}{504} \times \frac{756}{252} \times \frac{378}{126} \times \frac{189}{63} \times \frac{63}{21} = 3$$

5.

$$\frac{2x-3}{3} = 7-2x$$

$$2x-3 = 21-6x$$

$$8x = 24$$

$$8x = 24$$

$$x = 3$$

6.

$$SI = P \times \frac{R}{100} \times T$$

$$P = \frac{6000 \times 100 \times 12}{20 \times 9}$$

$$6000 = P \times \frac{20}{100} \times \frac{9}{12}$$

$$P = \text{sh } 4,000$$

7.

$$\frac{3}{4} - \frac{1}{8} = \frac{6-1}{8} = \frac{5}{8}$$

$$\text{if } \frac{5}{8} = 10,500 \text{ litres}$$

$$\therefore \frac{8}{8} = \frac{8}{8} \times 10,500 \times \frac{8}{5}$$

when full = 16,800 litres

8.



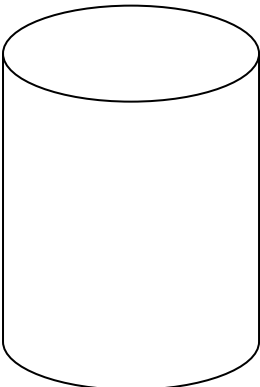
$$\text{Scale } 1\text{cm} = 20,000\text{cm} \quad \text{If } 40,000\text{m}^2 = 1\text{cm}^2$$

$$1\text{cm} = \frac{20,000}{100} = 200\text{m} \quad \therefore 168,000\text{m}^2$$

$$1\text{cm}^2 = 200 \times 200 \quad \frac{168,000 \times 1}{40,000} = 4.2\text{cm}^2$$

$$= 40,000\text{m}^2$$

9.



$$r = \pi r^2 h$$

$$= (3.142 \times 1.55 \times 1.55 \times 8.5)\text{m}^3$$

$$= 64.163567\text{m}^3$$

$$1 \text{ litre} = 1000\text{cm}^3$$

$$= 0.001\text{m}^3$$

$$\text{if } 0.001\text{m}^3 = 1 \text{ litre}$$

$$\therefore 64.164\text{m}^3$$

$$= 0.064 \text{ litres}$$

10.

$$\begin{aligned} \text{If } 3\% &= 240,000 \\ \therefore 100\% &= \frac{100 \times 240,000}{3} \\ &= \text{Ksh } 8,000,000 \end{aligned}$$

$$\begin{aligned} \text{Total car cost} &= 8,000,000 \\ \text{Less } 16\% \text{ VAT} &= 1,280,000 \\ \text{less commision} &= 240,000 \\ &= \text{sh } 6,480,000 \end{aligned}$$

11.

$$\begin{aligned} \frac{12^3(9^4 - 3^5)}{6^3 \times 3^6} &= \frac{1,728 \times 6318}{216 \times 729} \\ \frac{1,728(6,561 - 243)}{216 \times 729} &= 69.333 \end{aligned}$$

12.

Area of the sector

$$\begin{aligned} &= \frac{\sigma}{360} \times \pi r^2 \\ &= \frac{90}{360} \times \frac{22}{7} \times 15 \times 15 \\ &= 176.7857 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of } \Delta &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times 15 \times 15 \\ &= 112.5 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} &176.7857 \\ \text{Area shaded} &= \frac{-112.500}{64.2857 \text{ cm}^2} \end{aligned}$$

13. a)

$$\begin{aligned} &1^{\text{st}} \quad 2^{\text{nd}} \quad 3^{\text{rd}} \quad 4^{\text{th}} \quad 5^{\text{th}} \\ &12, 14, 13, y, y+17 \\ &\frac{12+14+13+y+y+17}{5} \\ &2y+56=80 \\ &2y=24 \\ &y=12 \end{aligned}$$

$$\begin{aligned} \text{a) Model age} \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{b) Medium age} \\ &12, 12, 13, 14, 29 \\ &= 13 \end{aligned}$$

14.

$$\begin{aligned} \text{Lenght y AB} &= \frac{1}{2} \pi D \\ &= \frac{1}{2} \times \frac{22}{7} \times 35 = 77 \text{ cm} \\ \text{Area top surface} &= 50 \times 35 = 1,750 \text{ cm}^2 \\ \text{Area of 2 semi-circular parts} &= \frac{1}{2} \pi r^2 \times 2 \\ &= \frac{1}{2} \times \frac{22}{7} \times 17.5 \times 7.5 \times 2 \\ &= 962.5 \text{ cm}^2 \end{aligned}$$

15.