

RATE, RATIO, PROPORTION AND PERCENTAGES MARKING SCHEME

NO	SOLUTION	MKS		
1.	$M : N : O$ $2(2 : 3)$ $= 4 : 6 : 15$ $\frac{15}{25} \times 120,000$ $= \text{Sh.}72,000$	3M	1989Q11	
2.	<p>(a) $6.16 \times 10 \times \frac{5}{2} \times 3600$ $= 554,400\text{cm}^3$ $\frac{554,400}{30,000} = \frac{30000}{30,000}$ $d = 18.48\text{cm}$</p> <p>(b) $(6.16 \times 10) - (11.6)$ $61.6 - 11.6$ $= 50\text{cm}^3$ per second Volume of tank = 3×1.2 $= 3.6\text{m}^3$ $\frac{3.6 \times 1000000}{50} = \frac{50}{50} \times t$ $t = 72,000\text{seconds}$ $\frac{72000}{3600}$</p> <p>(b) 20hours, at 2.00a, m the following day</p>	8M	1989Q17	
3.	34% of 1500 = 5,100 $N : K : M$ $15,000 - 5,100 = 9,900$ $= \frac{2}{10} \times 9900$ $= 1980$ $5100 \div 3 = 1700$ $1980 + 1700$ Sh.3,680	4M	1990Q6	
4.	$N : M$ $7 : 8$ 30% of 86400 = 25920 $25920 \div 2 = 12960$ $\frac{7}{15} \times 25920 = 12096$ $\frac{8}{15} \times 25920 = 13824$	8M		
			$12960 + 12096 = 25056$ $12960 + 13824 = 26784$ Nzau – sh 25056 Masese – sh 26784 (ii) $\frac{40}{100} \times 86400$ $= \text{sh.} 34560$	1991Q17
5.			$x + 2x + 2x + 70 = 1120$ $5x = 1120 - 70$ $5x = 1050$ $x = 210$ $K : C : W$ $210 : 420 : 490$ $= 3 : 6 : 7$	1991Q5
6.			$30 \text{ workers} \rightarrow 6 \text{ days} \rightarrow 8 \text{ hrs}$ $50 \text{ workers} \rightarrow$ $6 \times \frac{8}{6} \times \frac{30}{50}$ $= 4.8 \text{ days}$	1994Q8
7.			$\text{Volume} = 0.6 \times 10000 \times 3$ $= 18,000\text{m}^3$ $1\text{m}^3 \rightarrow 1000\text{litres}$ $18,000 \times 1000$ $= 18,000,000\text{litres}$ $\frac{18,000,000}{200} = 90000\text{seconds}$ $\frac{90,000}{3,600}$ $= 25\text{hrs}$	1994Q9
8.			$\frac{5}{11+x} \times 12,000 = 4000$ $\frac{5}{11+x} = \frac{4000}{12000}$ $\frac{5}{11+x} = \frac{1}{3}$ $15 = 11 + x$ $x = 4$	1995Q13
9.			$27 \times 4 \times 60 = 6480\text{cm}^3$ $6480 = 60 \times 30 \text{ xh}$ $h = \frac{6480}{1800}$ $= 3.6\text{cm}$ $20\text{cm} + 3.6\text{cm}$ $= 23.6\text{cm}$	

10.	Cap of the tank = $3.4 \times 2.8 \times 3 \times 1000$ = 201160litres Amount needed = 20160- 3600 = 16560 litres Time = $\frac{16560}{0.5 \times 60 \times 60}$ = 92hours 1996Q8	M1 M1 M1 A1 4marks
11	Equal share = $\frac{1}{4}, x \frac{12}{100} \times 46800$ = 1404 Reminder = $\frac{80}{100} \times 46800$ = 4118 Share in the ratio of contributions $\frac{14}{40} \times 41184$ = 1441 - 40 Total share = 1404 + 14414 + 40 = 15818.40 2000Q7	B1 M1 A1 marks
12	Dividends $\frac{5}{15} \times 81000 = 27000$ Atieno's $\frac{5}{9} \times 27000$ Shs. 15000 2002Q12	M1 M1 A1 3 marks
13	A : W: M = 10:8:5 Amount shared = $\frac{23}{5} \times 10000$ = 46000 Atieno's extra = $\frac{2}{23} \times 46000$ = 4000 2003Q14	M1 M1 A1 3 marks
14	$\frac{5 \times 6 \times 2}{8} = 7 \frac{1}{2}$ 2004Q10	
15.	Men ; $\frac{7}{9} \times 45 = 35$ Wom ; $\frac{2}{9} \times 45 = 10$ Let the No be x Men ; $\frac{5}{9}(45+x)=35$ $225 + 5x = 315$ x=18 2005Q3	M1 M1 A1 3 marks
16.	Commission earned (1.2 x 3800)0.225 =1026 2009Q15	M1 M1 A1 2 marks
17.	1 Cow feeds on $\frac{480}{2 \times 4}$ in 1day = 60kg No of cows to feed on 20160 in 6 weeks	M1 M1

	= 20160 $60 \times 6 \times 7$ = 8 cows 2009Q1	A1 3 marks									
18.	One person cut build $\frac{1}{5} \times 3$ huts in 21 days People can build 6 huts in 21 days 2 people and builds in 15 days = 14 people $5 \times \frac{6}{3} \times \frac{21}{15}$ 2010Q6	M1 A1 2									
19.	$\left. \begin{array}{l} 4(A - 2) = B + 2 \\ 2(A + 10) = B + 10 \end{array} \right\}$ $4A - B = 10 \dots \dots (i)$ $\pm 2A \pm B = \pm 10 \dots \dots (ii)$ $2A = 20$ $\rightarrow A = 10$ Substitute A= 10 in (i) $4 \times 10 - B = 10$ $\rightarrow B = 30$	M1 M1 A1 3									
19.	Ratio : copper : zinc : tin (a) <table style="margin-left: 40px;"> <tr> <td>Copper</td> <td>zinc</td> <td>tin</td> </tr> <tr> <td>3</td> <td>$\frac{2}{3}$</td> <td>5</td> </tr> <tr> <td>9</td> <td>6</td> <td>10</td> </tr> </table> Copper : zinc tin = 9 : 6 : 10 (b) (i) Mass of tin = $250 \times \frac{10}{25}$ = 100kg Mass of zinc and tin in alloy B: (ii) Mass of copper = $\frac{70}{100} \times 90$ = 63 mass of zinc and tin = 250 - 63 = 187 Amount of alloy in A and B: Mass of tin in alloy B = $\frac{8}{11} \times 187$ = 136 Difference: 136 - 100 = 36	Copper	zinc	tin	3	$\frac{2}{3}$	5	9	6	10	M1 A1 M1 A1 M1 A1 M1 A1
Copper	zinc	tin									
3	$\frac{2}{3}$	5									
9	6	10									

