

1. Work out

$$\frac{4}{9} \times 8 - \frac{1}{2} \times 0.02 + 30$$

$$0.8 - 0.01 + 30$$

$$30.8 - 0.01$$

$$\underline{\underline{30.79}}$$

$$\frac{4}{9} \times (2.5 - 0.7) - \frac{1}{2} \text{ of } 0.02 + 2.7 \div 0.09$$

(3mks)

2. Three bells ring at intervals of 16 minutes, 18 minutes and 28 minutes respectively. If they make the first ring together, after how many hours will they ring together again?

$$16 = 2 \times 2 \times 2 \times 2$$

$$18 = 2 \times 3 \times 3$$

$$28 = 2 \times 2 \times 7$$

L.C.M

$$16 \times 9 \times 7$$

$$1008 \text{ min}$$

$$\frac{1008}{60} = 16.8 \text{ hrs.}$$

$$\underline{\underline{16.8 \text{ hrs}}}$$

(3mks)

3. After spending a fifth of his monthly salary on clothing, a sixth on food and a third of the remainder on rent, a man had sh x left. What is the monthly income in terms of x?

$$\frac{1}{5} + \frac{1}{6} = \frac{6+5}{30} = \frac{11}{30}$$

$$\frac{1}{3} \times \frac{19}{30} = \frac{19}{90} + \frac{11}{30}$$

$$\frac{19 + 33}{90} = \frac{52}{90}$$

$$\frac{38}{90} = x$$

$$\frac{90}{90} = ?$$

(3mks)

4. Find the equation of a straight line which passes through (5, 3) and is parallel to the line $y = 2x$ leaving your answer in the form $y = mx + c$

$$y = 2x$$

$$a = 2$$

$$a_2 = 2.$$

$$\frac{y-3}{x-5} = 2$$

$$y-3 = 2x+10$$

$$y = \underline{\underline{2x-7}}$$

(3 marks)

5. Use reciprocal tables to simplify

$$\frac{3}{8.324} + \frac{5}{64.31}$$

$$\frac{3 \times 1}{8.324} + \frac{5 \times 1}{64.31}$$

$$3 \times 0.1201 + 5 \times 0.01555$$

$$0.3603 + 0.07775$$

$$0.43805$$

$$= \underline{\underline{0.4381}}$$

(3 marks)

L.C.M $2(x+1)(2+x)$

6. solve the equation $\frac{3}{2+x} - \frac{1}{x+1} = \frac{5}{2}$

$$6(2+x) - 2(x+1) = 5(x+1)\frac{2+x}{2+x}$$

$$12 + 6x - 2x - 2 = 5(2x + x^2 + 2 + x)$$

$$10 + 4x = 5(x^2 + 3x + 2)$$

$$10 + 4x = 5x^2 + 15x + 10$$

$$5x^2 + 11x = 0$$

$$x(5x + 11) = 0$$

$$x = 0$$

or

$$5x + 11 = 0$$

$$5x = -11$$

$$x = \frac{-11}{5}$$

$$x = \underline{\underline{-2.2}}$$

(4mks)

7. Given $x(2, -1)$ and $y(-2, 3)$ find

(i) vector xy

$$\begin{pmatrix} -2 & -2 \\ 3 & -1 \end{pmatrix} = \underline{\underline{\begin{pmatrix} -4 \\ 4 \end{pmatrix}}}$$

(2mks)

(ii) co-ordinates of the mid-point ~~between~~ of xy

$$\left(\frac{2 + (-2)}{2}, \frac{-1 + 3}{2} \right)$$

$$\underline{\underline{(0, 1)}}$$

(3mks)

(iii) $|\vec{xy}|$

$$\sqrt{(-4)^2 + (4)^2}$$

$$\sqrt{16 + 16}$$

$$\sqrt{32}$$

$$\underline{\underline{5.66}}$$

(2mks)

8

Evaluate

$$\sqrt[3]{\frac{1.23 \times 0.0089}{\log 76.54}} \quad 2.8839$$

NO	Exp	log.
1.23	1.23×10^0	0.0899
0.0089	8.9×10^{-3}	-3.9494
		<hr/>
		2.0393
	Log 76.54	0.4600
		<hr/>
		3.5793 $\times \frac{1}{3}$
		1.1931
	$10^{-1} \times 1.5599$	
	0.05599	
	<u>0.156</u>	

(4 marks)