S.2 SOLUTIONS FOR WORKSHEET TWO

$X/_{40}$

ON FRACTIONS

1. Evaluate the following fractions. **4 Marks @**

(a) $1\frac{1}{4}+2\frac{1}{2}-1\frac{3}{4}$		(b) $2\frac{1}{2}\times 3\frac{2}{3}\div 1\frac{5}{6}$	
$=\frac{5}{4}+\frac{5}{2}-\frac{7}{4}$	B_1	$=\frac{5}{2}\times\frac{11}{3}\div\frac{11}{6}$	B_1
$=\frac{5+10-7}{4}$	M_1	$=\frac{55}{6}\div\frac{11}{6}$	M_1
$=\frac{15-7}{4}$	M_1	$=\frac{55}{6}\times\frac{6}{11}$	M_1
$=\frac{8}{4}$		$=5$	A_1
$=2$	A_1		
(c) $3\frac{1}{5}\ of\left(2\frac{1}{2}+7\frac{5}{8}\right)$		(d) $\frac{3^1/_8+1^2/_3}{2/_3\times 5/_{12}}$	
$=\frac{16}{5}\ of\ \left(\frac{5}{2}+\frac{61}{8}\right)$		$=\left(\frac{25}{8}+\frac{5}{3}\right)\div\left(\frac{2}{3}\times\frac{5}{12}\right)$	
$=\frac{16}{5}\ of\ \left(\frac{20+61}{8}\right)$	M_1	$=\left(\frac{75+40}{24}\right)\div\left(\frac{1}{3}\times\frac{5}{6}\right)$	M_1
$=\frac{16}{5}\ of\ \frac{81}{8}$		$=\frac{115}{24}\div\frac{5}{18}$	
$=\frac{16}{5}\times\frac{81}{8}$	M_1	$=\frac{115}{24}\times\frac{18}{5}$	M_1
$=\frac{2}{5}\times\frac{81}{1}$		$=\frac{115}{24}\times\frac{18}{5}$	
$=\frac{2\times 81}{5\times 1}$	M_1	$=\frac{23}{4}\times\frac{3}{1}$	M_1
$=\frac{162}{5}$		$=\frac{69}{4}$	
$=32\frac{2}{5}$	A_1	$=17\frac{1}{4}$	A_1

2. Simplify: $\frac{1^1/_2-(8^1/_3\div 2^1/_2)}{1^1/_5\ of\ (1^1/_4+1^2/_3)}$ (UNEB 2008) 6 marks

$$=\left(\frac{3}{2}-\left(\frac{25}{3}\div\frac{5}{2}\right)\right)\div\left(\frac{6}{5}of\left(\frac{5}{4}+\frac{5}{3}\right)\right) \quad M_1$$

$$=\left(\frac{3}{2}-\left(\frac{25}{3}\times\frac{2}{5}\right)\right)\div\left(\frac{6}{5}of\left(\frac{15+20}{12}\right)\right)$$

$$=\left(\frac{3}{2}-\left(\frac{5}{3}\times\frac{2}{1}\right)\right)\div\left(\frac{6}{5}\ of\ \frac{35}{12}\right) \quad M_1$$

$$=\left(\frac{3}{2}-\frac{10}{3}\right)\div\left(\frac{6}{5}\times\frac{35}{12}\right) \quad M_1$$

$$=\left(\frac{9-20}{6}\right)\div\left(\frac{1}{1}\times\frac{7}{2}\right) \quad M_1$$

$$=\frac{-11}{6}\div\frac{7}{2}$$

$$=\frac{-11}{6}\times\frac{2}{7} \quad M_1$$

$$=\frac{-11}{3}\times\frac{1}{7}$$

$$=-\frac{11}{21} \quad A_1$$

3. Evaluate; $\frac{1\frac{1}{5}+4\frac{1}{2}\div 1\frac{1}{2}}{3\frac{3}{5}-2\frac{2}{5}\times 1\frac{1}{4}}$ (6 marks)

$$= \left(\frac{6}{5}+\frac{9}{2}\div\frac{3}{2}\right)\div\left(\frac{18}{5}-\frac{12}{5}\times\frac{5}{4}\right) \quad B_1$$
$$= \left(\frac{6}{5}+\frac{9}{2}\times\frac{2}{3}\right)\div\left(\frac{18}{5}-\frac{3}{1}\times\frac{1}{1}\right) \quad M_1$$
$$= \left(\frac{6}{5}+\frac{3}{1}\times\frac{1}{1}\right)\div\left(\frac{18}{5}-\frac{3}{1}\right) \quad M_1$$
$$= \left(\frac{6}{5}+\frac{3}{1}\right)\div\left(\frac{18}{5}-\frac{3}{1}\right)$$
$$= \frac{6+15}{5}\div\frac{18-15}{5} \quad M_1$$
$$= \frac{21}{5}\div\frac{3}{5} \quad M_1$$
$$= \frac{21}{5}\times\frac{5}{3}$$
$$= \frac{7}{1}\times\frac{1}{1} = 7 \quad A_1$$

4. Simplify: $\frac{\left(3\frac{5}{6}\div 2\frac{2}{15}\right)\times\frac{3}{23}}{5\frac{1}{3}-2\frac{7}{12}}$ (UNEB 2017) (6 marks)

$$= \left(\left(\frac{23}{6}\div\frac{32}{15}\right)\times\frac{3}{23}\right)\div\left(\frac{16}{3}-\frac{31}{12}\right)$$
$$= \left(\left(\frac{23}{6}\times\frac{15}{32}\right)\times\frac{3}{23}\right)\div\left(\frac{64-31}{12}\right) \quad M_1$$
$$= \left(\left(\frac{23}{2}\times\frac{5}{32}\right)\times\frac{3}{23}\right)\div\left(\frac{64-31}{12}\right) \quad M_1$$
$$= \left(\frac{115}{64}\times\frac{3}{23}\right)\div\frac{33}{12} \quad M_1$$
$$= \left(\frac{5}{64}\times\frac{3}{1}\right)\div\frac{11}{4} \quad M_1$$
$$= \frac{15}{64}\div\frac{11}{4}$$
$$= \frac{15}{64}\times\frac{4}{11} \quad M_1$$
$$= \frac{15}{16}\times\frac{1}{11}$$
$$= \frac{15}{176} \quad A_1$$

5. Evaluate $\frac{2\frac{1}{2}+\left(\frac{3}{5}\times 1\frac{1}{4}\right)}{1\frac{1}{8}\frac{3}{4}}$ (UNEB 2016) (6 marks)

$$= \left(\frac{5}{2}+\left(\frac{3}{5}\times\frac{5}{4}\right)\right)\div\left(\frac{9}{8}-\frac{3}{4}\right)$$
$$= \left(\frac{5}{2}+\left(\frac{3}{1}\times\frac{1}{4}\right)\right)\div\left(\frac{9}{8}-\frac{3}{4}\right) \quad M_1$$
$$= \left(\frac{5}{2}+\frac{3}{4}\right)\div\left(\frac{9-6}{8}\right) \quad M_1$$
$$= \frac{10+3}{4}\div\frac{3}{8} \quad M_1$$
$$= \frac{13}{4}\times\frac{8}{3} \quad M_1$$
$$= \frac{13}{4}\times\frac{8}{3} \quad M_1$$
$$= \frac{13}{1}\times\frac{2}{3}$$
$$= \frac{26}{3}$$
$$= 8\frac{2}{3} \quad A_1$$