WORKSHEET 1 ANSWERS

1. Inverse operation: multiplication

2. The one you are **dividing by**.

3. Convert mixed numbers to improper fractions.

4. (a) fraction to be inverted: $\frac{2}{5}$ (b) fraction to be inverted: $\frac{1}{3}$

   (c) fraction to be inverted: $\frac{1}{3}$ and $\frac{2}{5}$ (d) fraction to be inverted: $\frac{2}{5}$

5. (a) $\times$ (b) "of"

   (c) $+$ (d) $\div$

6. Order of operations:
   brackets first
   "of"
   $\times$ and $\div$
   $+$ and $-$

7. (a) There are 2 fives in 10. (b) There are 2 quarters in $\frac{1}{2}$.

WORKSHEET 2

1. (a) $\frac{4}{12} \div \frac{1}{2}$

$= \frac{4}{\cancel{12}_{6}} \times \frac{\cancel{2}^{1}}{1}$

$= \frac{4}{6}$

$= \frac{2}{3}$

(b) $\frac{7}{8} \div 14$

$= \frac{\cancel{7}^{1}}{8} \times \frac{1}{\cancel{14}_{2}}$

$= \frac{1}{16}$

(c) $3\frac{1}{2} \div \frac{7}{10}$

$= \frac{\cancel{7}^{1}}{\cancel{2}_{1}} \times \frac{\cancel{10}^{5}}{\cancel{7}_{1}}$

$= 5$

(d) $\frac{3}{4} \div \frac{5}{8} \div \frac{5}{6}$

$= \frac{3}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{5} \times \frac{6}{5}$

$= \frac{36}{25}$

$= 1\frac{11}{25}$

WORKSHEET 2 ANSWERS continues …

1. (e) $10\frac{1}{2} \div 4\frac{1}{2}$

$= \frac{\cancel{21}^{7}}{\cancel{2}_{1}} \times \frac{\cancel{2}^{1}}{\cancel{9}_{3}}$

$= \frac{7}{3}$

$= 2\frac{1}{3}$

2. (a) $1\frac{2}{3} \div \frac{2}{15}$ of $1\frac{1}{9}$

$= \frac{5}{3} \div \left(\frac{2}{\cancel{15}_{3}} \times \frac{\cancel{10}^{2}}{9} \right)$

$= \frac{5}{3} \div \frac{4}{27}$

$= \frac{5}{\cancel{3}_{1}} \times \frac{\cancel{27}^{9}}{4}$

$= \frac{45}{4}$

$= 11\frac{1}{4}$

(b) $\frac{7}{12}$ of $\frac{4}{21} + 4\frac{1}{7}$

$= \left(\frac{\cancel{7}^{1}}{\cancel{12}_{3}} \times \frac{\cancel{4}^{1}}{\cancel{21}_{3}} \right) + \frac{29}{7}$

$= \frac{1}{9} + \frac{29}{7}$

$= \frac{7 + 261}{63}$

$= \frac{268}{63}$

$= 4\frac{16}{63}$

(c) $4\frac{1}{2} \times \left(10\frac{7}{12} - 1\frac{1}{4} \right)$

$= \frac{9}{2} \times \left(\frac{127}{12} - \frac{5}{4} \right)$

$= \frac{9}{2} \times \left(\frac{127 - 15}{12} \right)$

$= \frac{\cancel{9}^{3}}{\cancel{2}_{1}} \times \frac{\cancel{112}^{56}}{\cancel{12}_{4}}$

$= \frac{3}{1} \times \frac{\cancel{56}^{14}}{\cancel{4}_{1}}$

$= 42$

(d) $\frac{2}{3} + \left(\frac{1}{2} - \frac{1}{4} \right) \times \frac{4}{5}$

$= \frac{2}{3} + \left(\frac{1}{\cancel{4}_{1}} \times \frac{\cancel{4}^{1}}{5} \right)$

$= \frac{2}{3} + \frac{1}{5}$

$= \frac{10 + 3}{15}$

$= \frac{13}{15}$

WORKSHEET 2 ANSWERS continues …

3. Number of hours in one day: 24 hours

$$24 \div 1\frac{1}{3}$$
$$= \frac{\cancel{24}^{6}}{1} \times \frac{3}{\cancel{4}_{1}}$$
$$= 18 \text{ revolutions}$$

4. $$4 \div \frac{4}{5}$$
$$= \frac{\cancel{4}^{1}}{1} \times \frac{5}{\cancel{4}_{1}}$$
$$= 5 \text{ tins}$$

5. $$13\frac{1}{12} - \left(5\frac{2}{3} + 6\frac{5}{6}\right)$$ [place sum in brackets; calculate first]
$$= \frac{157}{12} - \left(\frac{17}{3} + \frac{41}{6}\right)$$
$$= \frac{157}{12} - \left(\frac{34+41}{6}\right)$$
$$= \frac{157}{12} - \frac{75}{6}$$
$$= \frac{157-150}{12}$$
$$= \frac{7}{12}$$

WORKSHEET 3 ANSWERS

1. (a) Reciprocal of $\frac{1}{2}$ is $\frac{2}{1} = 2$

(b) Reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$

(b) Reciprocal of $\frac{6}{5}$ is $\frac{5}{6}$

(d) Reciprocal of 8 is $\frac{1}{8}$

2. (a) $$\frac{4}{12} \div \frac{1}{2}$$
$$= \frac{\cancel{4}^{2}}{\cancel{12}_{6}} \times \frac{\cancel{2}^{1}}{1}$$
$$= \frac{2}{3}$$

(b) $$\frac{3}{4} \div \frac{7}{8}$$
$$= \frac{3}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{7}$$
$$= \frac{6}{7}$$

WORKSHEET 3 ANSWERS continues …

2. (c) $\frac{1}{3} \div 1\frac{1}{2}$

$= \frac{1}{3} \times \frac{2}{3}$

$= \frac{2}{9}$

(d) $3\frac{1}{8} \div 1\frac{1}{4}$

$= \frac{\cancel{25}^{5}}{\cancel{8}_{2}} \times \frac{\cancel{4}^{1}}{\cancel{5}_{1}}$

$= \frac{5}{2}$

$= 2\frac{1}{2}$

(e) $4\frac{7}{12} \div 4\frac{1}{4}$

$= \frac{55}{\cancel{12}_{3}} \times \frac{\cancel{4}^{1}}{17}$

$= \frac{55}{51}$

$= 1\frac{4}{51}$

(f) $1\frac{4}{5} \div 2\frac{7}{10}$

$= \frac{\cancel{9}^{1}}{\cancel{5}_{1}} \times \frac{\cancel{10}^{2}}{\cancel{27}_{3}}$

$= \frac{2}{3}$

3. (a) $\frac{5}{6} \div \frac{5}{12} \times 1\frac{1}{3}$

$= \frac{\cancel{5}^{1}}{\cancel{6}_{1}} \times \frac{\cancel{12}^{2}}{\cancel{5}_{1}} \times \frac{4}{3}$

$= \frac{8}{3}$

$= 2\frac{2}{3}$

(b) $2\frac{4}{5} \times 3\frac{3}{4} \div 10\frac{1}{2}$

$= \frac{\cancel{14}^{2}}{\cancel{5}_{1}} \times \frac{\cancel{15}^{3}}{\cancel{4}_{2}} \times \frac{\cancel{2}^{1}}{\cancel{21}_{3}}$

$= \frac{6}{6}$

$= 1$

(c) $1\frac{3}{4} \div \frac{7}{16}$ of $1\frac{5}{8}$

$= \frac{7}{4} \div \frac{91}{128}$

$= \frac{\cancel{7}^{1}}{\cancel{4}_{1}} \times \frac{\cancel{128}^{32}}{\cancel{91}_{13}}$

$= \frac{32}{13}$

$= 2\frac{6}{13}$

(d) $3\frac{7}{12} + 4\frac{5}{6} - \frac{5}{12}$ of $1\frac{3}{5}$

$= \frac{43}{12} + \frac{29}{6} - \left(\frac{\cancel{5}^{1}}{\cancel{12}_{3}} \times \frac{\cancel{8}^{2}}{\cancel{5}^{1}} \right)$

$= \frac{43}{12} + \frac{29}{6} - \frac{2}{3}$

$= \frac{43 + 58 - 8}{12}$

$= \frac{93}{12}$

$= 7\frac{9}{12}$

$= 7\frac{3}{4}$

WORKSHEET 3 ANSWERS continues …

4. $8\frac{3}{4} \div 1\frac{1}{4}$

$= \frac{\cancel{35}^{7}}{\cancel{4}_{1}} \times \frac{\cancel{4}^{1}}{\cancel{5}_{1}}$

$= 7$ wheelbarrows

5. $7\frac{7}{8} \div 2\frac{4}{7}$ "Product" is answer of multiplication; divide answer by given number.

$= \frac{\cancel{63}^{7}}{8} \times \frac{7}{\cancel{18}_{2}}$

$= \frac{49}{16}$

$= 3\frac{1}{16}$

6. (a) $1\,\ell = 1000\,m\ell$

$\frac{375}{1000} = \frac{3}{8}$

(b) $3\frac{3}{4} \div \frac{3}{8}$

$= \frac{\cancel{15}^{5}}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{\cancel{3}_{1}}$

$= 10$

7. Sum: $6\frac{3}{8} + 3\frac{3}{16}$ Difference: $6\frac{3}{8} - 3\frac{3}{16}$

$\left(6\frac{3}{8} + 3\frac{3}{16}\right) \div \left(6\frac{3}{8} - 3\frac{3}{16}\right)$

$= \left(\frac{51}{8} + \frac{51}{16}\right) \div \left(\frac{51}{8} - \frac{51}{16}\right)$

$= \frac{102+51}{16} \div \frac{102-51}{16}$

$= \frac{153}{16} \div \frac{51}{16}$

$= \frac{\cancel{153}^{3}}{\cancel{16}_{1}} \times \frac{\cancel{16}^{1}}{\cancel{51}_{1}}$

$= 3$

8. $\frac{3}{4} \div \frac{1}{8}$

$= \frac{3}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{1}$

$= 6$ athletes