

Y7H U14&15 Fractions. Knowledge Organiser

To add or subtract fractions you must have **the same denominator.**

To divide by a fraction you **multiply by the reciprocal.**

Multiply simple decimals by converting to fractions

Calculate the following by converting the decimals into fractions first:

$$\text{a) } 0.4 \times 0.23 = \frac{4}{10} \times \frac{23}{100} = \frac{92}{1000} = 0.092$$

$$\text{b) } 0.03 \times 0.119 = \frac{3}{100} \times \frac{119}{1000} = \frac{357}{100000} = 0.00357$$

Order decimals with different number of decimal places

Place the following numbers in ascending order

0.62 0.607 0.006 0.6 0.068

Add zeroes to help compare:

0.006, 0.068, 0.600, 0.607, 0.62

Compare fractions with different denominators

Place the following numbers in ascending order

$$\frac{2}{5} \quad \frac{1}{4} \quad \frac{3}{10} \quad \frac{7}{20} \quad \frac{3}{8}$$

Change to a common denominator:

$$\frac{16}{40} \quad \frac{10}{40} \quad \frac{12}{40} \quad \frac{14}{40} \quad \frac{15}{40}$$

Correct order is:

$$\frac{1}{4} \quad \frac{3}{10} \quad \frac{7}{20} \quad \frac{3}{8} \quad \frac{2}{5}$$

Add and Subtract any proper fractions

Calculate the following:

$$\text{a) } \frac{5}{7} + \frac{1}{6} = \frac{30}{42} + \frac{7}{42} = \frac{37}{42}$$

$$\text{b) } \frac{7}{12} - \frac{4}{9} = \frac{21}{36} - \frac{16}{36} = \frac{5}{36}$$

Multiply two fractions

Calculate the following:

$$\text{a) } \frac{5}{8} \times \frac{3}{7} = \frac{15}{56}$$

$$\text{b) } \frac{15}{22} \times \frac{11}{18} = \frac{5}{2} \times \frac{1}{6} = \frac{5}{12}$$

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Divide a fraction by a fraction

Calculate the following:

$$\text{a) } \frac{6}{11} \div \frac{7}{8} = \frac{6}{11} \times \frac{8}{7} = \frac{48}{77}$$

$$\text{b) } \frac{5}{8} \div \frac{15}{16} = \frac{5}{8} \times \frac{16}{15} = \frac{2}{3}$$

Add and subtract mixed numbers

Calculate the following:

$$\begin{aligned} 3\frac{7}{15} + 1\frac{3}{4} &= \frac{52}{15} + \frac{7}{4} \\ &= \frac{208}{60} + \frac{105}{60} \\ &= \frac{313}{60} = 5\frac{13}{60} \end{aligned}$$

Multiply mixed numbers

Calculate the following:

$$\begin{aligned} 2\frac{3}{4} \times 1\frac{2}{3} &= \frac{11}{4} \times \frac{5}{3} \\ &= \frac{55}{12} \\ &= 4\frac{7}{12} \end{aligned}$$

Divide mixed numbers

Calculate the following:

$$\begin{aligned} 1\frac{2}{3} \div 1\frac{1}{4} &= \frac{5}{3} \div \frac{5}{4} \\ &= \frac{5}{3} \times \frac{4}{5} \\ &= \frac{4}{3} = 1\frac{1}{3} \end{aligned}$$

Sparx

Order decimals M522

Compare fractions M335

+/- fractions M835

× fractions M157

÷ fractions M110

+/- mixed numbers M931

Multiply decimals M958

× mixed numbers M197

÷ mixed numbers M265

Solving wordy problems using a mixture of fractions and decimals

Jasmine has a bottle that contains $\frac{7}{10}$ litre of orange juice.

She pours out some orange juice and now has $\frac{1}{4}$ litre left.

How much orange juice did Jasmine pour out?

$$\begin{aligned} \frac{7}{10} - \frac{1}{4} &= \frac{14}{20} - \frac{5}{20} \\ &= \frac{9}{20} \text{ litre of orange juice poured out} \end{aligned}$$