

Calculate with Fractions with & without a Calculator using $+-\times\div$ NA9

Equivalent Fractions and Cancelling

Remember at the end of a fraction question check to see if your fraction can be **simplified** by **cancelling**.

Example

$$\frac{10}{15} = \frac{2}{3}$$

The two fractions remain the same, so we say the fractions are equivalent.

Strategy

To cancel a fraction:

1. Find a number that goes into the top and bottom.
2. Divide top and bottom by this number.
3. If possible repeat from stage 1.

Similarly multiplying the top and bottom of a fraction by a given number leaves an equivalent fraction.

Example

$$\frac{2}{3} = \frac{12}{18}$$

$\frac{2}{3}$ and $\frac{12}{18}$ are equivalent, i.e. $\frac{2}{3} \equiv \frac{12}{18}$

' \equiv ' means 'equivalent'

Your Turn!!

- a) Cancel the fraction $\frac{256}{1024}$.

Calculator Check: Calculators differ, how does yours work?

To enter fractions into your calculator, use the $\frac{a}{b}/c$ button.

e. g. To enter $\frac{1}{3}$, press 1 $\frac{a}{b}/c$ 3 ; To enter $1\frac{2}{3}$, press 1 $\frac{a}{b}/c$ 2 $\frac{a}{b}/c$ 3

Your Turn!!

b) To cancel a fraction simply enter it and press '='.

Try $\frac{256}{1024}$ to see how easy this is and to check your answer above!

Adding and Subtracting Fractions

Example

$$\frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12} = \frac{11}{12}$$

$\frac{1}{4} \times \frac{3}{3}$

Strategy

1. Get the denominators (bottom) of the fractions the same. The easiest way to do this is to multiply by opposite denominators.
2. Add the tops and keep the bottoms the same!

Hey Look...

These are now the same - common denominator!

Your Turn!!

- c) Find $\frac{7}{8} - \frac{2}{5}$

Multiplying Fractions

Example

$$\frac{12}{5} \times \frac{7}{20} = \frac{7}{10}$$

$1 \times 7 = 7$
 $5 \times 10 = 50$

Strategy

1. Cancel parts in the top with parts in the bottom if possible.
2. Multiply tops and multiply bottoms.

Your Turn!!

- d) Find $\frac{6}{7} \times \frac{5}{6}$

Dividing Fractions

Example

$$\frac{2}{5} \div \frac{20}{7} \Rightarrow \frac{2}{5} \times \frac{7}{20}$$

Strategy

Turn the 2nd fraction upside down and change the sign to multiplication

Your Turn!!

- e) Find $\frac{5}{8} \div \frac{7}{9}$

Now this can be solved using multiplication, see the example above.

Your Turn!!

f) Do the +, \times and \div calculations, from the examples above, on your calculator. Check you get the same answers.

RAPID 'ACID' TEST - Blank out the page above before answering these!

- 1) Find a) $\frac{2}{3} \times \frac{4}{5}$ b) $\frac{2}{3} + \frac{4}{5}$ c) $\frac{2}{3} \div \frac{4}{5}$