

Investigating Fractions: Addition and Subtraction

Evaluate the following:

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

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

$$\frac{1}{4} + \frac{1}{5}$$

$$\frac{1}{5} + \frac{1}{6}$$

$$\frac{1}{6} + \frac{1}{7}$$

Can you spot a pattern between the question and the answer?

Predict (do not work out!) what you believe the following will give as an answer:

$$\frac{1}{10} + \frac{1}{11}$$

$$\frac{1}{105} + \frac{1}{106}$$

$$\frac{1}{29} + \frac{1}{36}$$

Check that at least one of your predictions is correct:

Use your imagination to write down some of your own questions of the same format as the ones above and write down what your predicted answer is:

Explore what happens if you change the numerators. Does any pattern still exist?

For example: $\frac{3}{10} + \frac{2}{11}$

Part 2:

Now evaluate the following:

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

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

$$\frac{1}{4} - \frac{1}{5}$$

$$\frac{1}{5} - \frac{1}{6}$$

$$\frac{1}{6} - \frac{1}{7}$$

Can you spot a pattern?

Now predict what the following will give as an answer

$$\frac{1}{10} - \frac{1}{11}$$

$$\frac{1}{101} - \frac{1}{102}$$

$$\frac{1}{12} - \frac{1}{11}$$

Explore what happens if you change the denominators to whatever you wish. Does a pattern still exist?

For example: $\frac{1}{5} - \frac{1}{12}$

Explore what happens if you change the numerators to whatever you wish. Does a pattern still exist?

For example: $\frac{2}{5} - \frac{1}{4}$