

Relationships Between Fractions

Fractions with small denominators are larger numbers than those with large denominators. If you want to find out how much bigger one fraction is compared to another, all you have to do is divide the larger denominator by the smaller one.

eg. $\frac{1}{10}$ is ten times larger than $\frac{1}{100}$:

$$(100 \div 10 = 10)$$

- 1) a) Which fraction is larger, $\frac{1}{8}$ or $\frac{1}{16}$?
b) By what factor? (Show your working).
- 2) a) Which fraction is larger, $\frac{1}{5}$ or $\frac{1}{15}$?
b) By what factor? (Show your working).
- 3) a) Which fraction is larger, $\frac{1}{7}$ or $\frac{1}{28}$?
b) By what factor? (Show your working).
- 4) a) Which fraction is larger, $\frac{1}{6}$ or $\frac{1}{2}$?
b) By what factor? (Show your working).
- 5) a) Which fraction is larger, $\frac{1}{4}$ or $\frac{1}{8}$?
b) By what factor? (Show your working).

The following fractions are all equivalent (same as each other):

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = \frac{7}{14} = \frac{8}{16} \dots$$

$$\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12} = \frac{5}{15} = \frac{6}{18} = \frac{7}{21} = \frac{8}{24} \dots$$

Write out similar patterns for:

6) $\frac{1}{4}$

7) $\frac{1}{5}$

8) $\frac{1}{6}$

Cancelling helps us to simplify a fraction, or **reduce it to its lowest terms**. To do this we divide the numerator and the denominator by the **SAME** number.

eg. $\frac{4}{16} = \frac{4 \times 1}{4 \times 4} = \frac{1}{4}$ or $\frac{4}{16} = \frac{1}{4}$

(Both 4 and 16 will divide by 4)

Cancel the following fractions to find their equivalent fractions, as shown above:

9) $\frac{2}{8}$ 10) $\frac{5}{25}$ 11) $\frac{3}{9}$ 12) $\frac{6}{36}$ 13) $\frac{4}{16}$ 14) $\frac{7}{49}$

A number that will divide exactly into both the numerator and the denominator, is called a **common factor**.

For the following equivalent fractions, replace x with the correct number:

15) $\frac{x}{10} = \frac{20}{100}$

17) $\frac{5}{10} = \frac{20}{x}$

16) $\frac{6}{21} = \frac{2}{x}$

18) $\frac{3}{x} = \frac{15}{90}$

19) a) Mark each of these fractions on a line from 0 to 1, with 20 marked divisions
(you will need to change the fraction so the denominator is 20):

$\frac{3}{10}, \frac{3}{4}, \frac{2}{5}, \frac{1}{2}, \frac{7}{10}, \frac{4}{5}, \frac{13}{20}$

b) Which is the smallest?

c) Which is the largest?

20) a) Mark each of these fractions on a line from 0 to 1, with 30 marked divisions:

$\frac{3}{10}, \frac{1}{3}, \frac{2}{5}, \frac{2}{3}, \frac{7}{10}, \frac{4}{5}, \frac{5}{6}$

b) Which is the smallest?

c) Which is the largest?