# Les fractions de A à Z
# exercices résolus

## Exercice 1

**SIMPLIFICATION ET CONVERSION DE FRACTIONS**

On ne change pas un quotient quand on multiplie ou divise son numérateur et son dénominateur par un même nombre.

Simplifions sous forme irréductible les fractions :

$\frac{6}{15} = \frac{6:3}{15:3} = \frac{2}{5}$

$\frac{12}{15} = \frac{12:3}{15:3} = \frac{4}{5}$

$\frac{20}{36} = \frac{20:4}{36:4} = \frac{5}{9}$

$\frac{72}{80} = \frac{72:8}{80:8} = \frac{9}{10}$

$\frac{30}{36} = \frac{30:6}{36:6} = \frac{5}{6}$

$\frac{12}{18} = \frac{12:6}{18:6} = \frac{2}{3}$

$\frac{35}{42} = \frac{35:7}{42:7} = \frac{5}{6}$

$\frac{120}{125} = \frac{120\times2}{125\times2} = \frac{240}{250} = \frac{24}{25}$

$\frac{11}{121} = \frac{11:11}{121:11} = \frac{1}{11}$

$\frac{13}{169} = \frac{13:13}{169:13} = \frac{1}{13}$

Convertissons en pourcentages les fractions :

$\frac{1}{2} = \frac{1\times50}{2\times50} = \frac{50}{100} = 50\%$

$\frac{1}{4} = \frac{1\times25}{4\times25} = \frac{25}{100} = 25\%$

$\frac{3}{4} = \frac{3\times25}{4\times25} = \frac{75}{100} = 75\%$

$\frac{3}{10} = \frac{3\times10}{10\times10} = \frac{30}{100} = 30\%$

$\frac{7}{10} = \frac{7\times10}{10\times10} = \frac{70}{100} = 70\%$

$\frac{1}{5} = \frac{1\times20}{5\times20} = \frac{20}{100} = 20\%$

$\frac{2}{5} = \frac{2\times20}{5\times20} = \frac{40}{100} = 40\%$

$\frac{3}{5} = \frac{3\times20}{5\times20} = \frac{60}{100} = 60\%$

$\frac{3}{20} = \frac{3\times5}{20\times5} = \frac{15}{100} = 15\%.$

$\frac{9}{25} = \frac{9\times4}{25\times4} = \frac{36}{100} = 36\%$

$\frac{13}{20} = \frac{13\times5}{20\times5} = \frac{65}{100} = 65\%.$

$\frac{17}{25} = \frac{17\times4}{25\times4} = \frac{68}{100} = 68\%$

$\frac{14}{50} = \frac{14\times2}{50\times2} = \frac{28}{100} = 28\%$

$\frac{41}{50} = \frac{41\times2}{50\times2} = \frac{82}{100} = 82\%$

## Exercice 2

**COMPARAISON DE FRACTIONS**

Comparons les fractions :

a) $\frac{3}{4}$ et $\frac{14}{20}$ b) $\frac{1}{3}$ et $\frac{5}{18}$ c) $\frac{1}{2}$ et $\frac{9}{20}$ d) $\frac{2}{3}$ et $\frac{5}{6}$

a) $\frac{3}{4} = \frac{3\times5}{4\times5} = \frac{15}{20} > \frac{14}{20}$

b) $\frac{1}{3} = \frac{1\times6}{3\times6} = \frac{6}{18} > \frac{5}{18}$

c) $\frac{1}{2} = \frac{1\times10}{2\times10} = \frac{10}{20} > \frac{9}{20}$

d) $\frac{2}{3} = \frac{2\times2}{3\times2} = \frac{4}{6} < \frac{5}{6}$

## Exercice 3

**PRODUIT D'UNE FRACTION PAR UN NOMBRE**

Règle de calcul : $\frac{a}{b}\times c = \frac{a\times c}{b} = a\times\frac{c}{b}$

Réduisons sous forme irréductible :

$\frac{7}{9}\times 9 = 7\times\frac{9}{9} = 7\times 1 = 7$

$\frac{9}{2}\times 2 = 9\times\frac{2}{2} = 9\times 1 = 9$

$\frac{3}{5}\times 10 = 3\times\frac{10}{5} = 3\times 2 = 6$

$\frac{3}{7}\times 14 = 3\times\frac{14}{7} = 3\times 2 = 6$

$\frac{3}{60}\times 24 = 3\times\frac{24}{60} = 3\times\frac{4}{10} = 3\times\frac{2}{5} = \frac{6}{5}$

$45\times\frac{1}{75} = \frac{45}{75} = \frac{9}{15} = \frac{3}{5}$

$\frac{32}{108}\times 3 = \frac{16}{54}\times 3 = \frac{8}{27}\times 3 = 8\times\frac{3}{27} = 8\times\frac{1}{9} = \frac{8}{9}$

$\frac{6}{7}\times 14 = 6\times\frac{14}{7} = 6\times 2 = 12$

$\frac{5}{9}\times 27 = 5\times\frac{27}{9} = 5\times 3 = 15$

$15\times\frac{3}{10} = \frac{15}{10}\times 3 = \frac{3}{2}\times 3 = \frac{9}{2}$

$\frac{45}{70}\times 7 = \frac{9}{14}\times 7 = 9\times\frac{7}{14} = 9\times\frac{1}{2} = \frac{9}{2}$

$\frac{2}{150}\times 15 = 2\times\frac{15}{150} = 2\times\frac{1}{10} = \frac{2}{10} = \frac{1}{5}$

$$\frac{4}{75} \times 25 = 4 \times \frac{25}{75} = 4 \times \frac{1}{3} = \frac{4}{3}$$

$$\frac{25}{1000} \times 10 = \frac{25}{100} = \frac{1}{4}$$

$$\frac{5}{11} \times 121 = 5 \times \frac{121}{11} = 5 \times 11 = 55$$

$$\frac{5}{42} \times 14 = 5 \times \frac{14}{42} = 5 \times \frac{1}{3} = \frac{5}{3}$$

## Exercice 4

**PRODUIT DE DEUX FRACTIONS**

Règle de calcul : $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$

Réduisons sous forme irréductible :

$$\frac{3}{10} \times \frac{10}{7} = \frac{3}{7} \times \frac{10}{10} = \frac{3}{7}$$

$$\frac{2}{7} \times \frac{7}{3} = \frac{2}{3} \times \frac{7}{7} = \frac{2}{3}$$

$$\frac{5}{3} \times \frac{3}{2} = \frac{5}{2} \times \frac{3}{3} = \frac{5}{2}$$

$$\frac{3}{5} \times \frac{4}{3} = \frac{3}{3} \times \frac{4}{5} = \frac{4}{5}$$

$$\frac{3}{4} \times \frac{8}{5} = \frac{3}{5} \times \frac{8}{4} = \frac{3}{5} \times 2 = \frac{6}{5}$$

$$\frac{2}{3} \times \frac{6}{5} = \frac{2}{5} \times \frac{6}{3} = \frac{2}{5} \times 2 = \frac{4}{5}$$

$$\frac{4}{5} \times \frac{10}{3} = \frac{4}{3} \times \frac{10}{5} = \frac{4}{3} \times 2 = \frac{8}{3}$$

$$\frac{5}{8} \times \frac{2}{3} = \frac{5}{3} \times \frac{2}{8} = \frac{5}{3} \times \frac{1}{4} = \frac{5}{12}$$

$$\frac{6}{5} \times \frac{10}{12} = \frac{6}{12} \times \frac{10}{5} = \frac{1}{2} \times 2 = 1$$

$$\frac{10}{11} \times \frac{22}{5} = \frac{10}{5} \times \frac{22}{11} = 2 \times 2 = 4$$