

## Écritures fractionnaires

### Exercice 1. Addition

On réduit au même dénominateur :

$$a = \frac{5}{4} + \frac{4}{5} = \frac{5 \times \textcolor{red}{5}}{4 \times \textcolor{red}{5}} + \frac{4 \times \textcolor{green}{4}}{5 \times \textcolor{green}{4}} = \frac{41}{20}$$

$$c = \frac{4}{3} - \frac{1}{6} = \frac{4 \times \textcolor{red}{2}}{3 \times \textcolor{red}{2}} - \frac{1}{6} = \frac{7}{6}$$

$$e = \frac{5}{12} + \frac{3}{8} = \frac{5 \times \textcolor{red}{2}}{12 \times \textcolor{red}{2}} + \frac{3 \times \textcolor{green}{3}}{8 \times \textcolor{green}{3}} = \frac{19}{24}$$

$$g = \frac{2}{7} - \frac{3}{8} = \frac{2 \times \textcolor{red}{8}}{7 \times \textcolor{red}{8}} - \frac{3 \times \textcolor{green}{7}}{8 \times \textcolor{green}{7}} = -\frac{5}{56}$$

$$i = \frac{2}{35} - \frac{3}{7} = \frac{2}{35} - \frac{3 \times \textcolor{red}{5}}{7 \times \textcolor{red}{5}} = -\frac{13}{35}$$

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

$$d = \frac{1}{10} - \frac{9}{100} = \frac{10}{100} - \frac{9}{100} = \frac{1}{100}$$

$$f = -\frac{1}{9} + \frac{5}{12} = -\frac{1 \times \textcolor{red}{4}}{9 \times \textcolor{red}{4}} + \frac{5 \times \textcolor{green}{3}}{12 \times \textcolor{green}{3}} = \frac{11}{36}$$

$$h = \frac{1}{20} - \frac{4}{15} = \frac{1 \times \textcolor{red}{3}}{20 \times \textcolor{red}{3}} - \frac{4 \times \textcolor{green}{4}}{15 \times \textcolor{green}{4}} = -\frac{13}{60}$$

### Exercice 2. Multiplication

On a simplifié avant d'effectuer les produits lorsque cela était possible.

$$a = \frac{4}{3} \times \frac{2}{5} = \frac{4 \times 2}{3 \times 5} = \frac{8}{15}$$

$$b = \frac{6}{5} \times \frac{30}{7} = \frac{6 \times \textcolor{red}{30}}{5 \times 7} = \frac{6 \times \textcolor{red}{6}}{1 \times 7} = \frac{36}{7}$$

$$c = \frac{5}{4} \times \frac{8}{15} = \frac{\textcolor{red}{5} \times \textcolor{green}{8}}{4 \times \textcolor{red}{15}} = \frac{\textcolor{red}{1} \times \textcolor{green}{2}}{1 \times 3} = \frac{2}{3}$$

$$d = 8 \times \frac{5}{6} = \frac{\textcolor{red}{8} \times 5}{\textcolor{red}{6}} = \frac{\textcolor{red}{4} \times 5}{3} = \frac{20}{3}$$

$$e = \frac{14}{15} \times \frac{20}{21} = \frac{\textcolor{red}{14} \times \textcolor{red}{20}}{\textcolor{red}{15} \times \textcolor{red}{21}} = \frac{\textcolor{red}{2} \times \textcolor{green}{4}}{\textcolor{green}{3} \times \textcolor{red}{3}} = \frac{8}{9}$$

$$f = 3 \times \left(-\frac{7}{9}\right) = -\frac{\textcolor{red}{3} \times 7}{\textcolor{red}{9}} = -\frac{\textcolor{red}{1} \times 7}{\textcolor{red}{3}} = -\frac{7}{3}$$

### Exercice 3. Division

$$a = \frac{4}{\frac{3}{2}} = 4 \times \frac{2}{3} = \frac{4 \times 2}{3} = \frac{8}{3}$$

$$b = \frac{1}{\frac{2}{7}} = \frac{7}{2}$$

$$c = \frac{\frac{4}{3}}{2} = \frac{4}{3} \times \frac{1}{2} = \frac{\textcolor{red}{4} \times 1}{3 \times \textcolor{red}{2}} = \frac{\textcolor{red}{2} \times 1}{3 \times \textcolor{red}{1}} = \frac{2}{3}$$

$$d = \frac{\frac{2}{5}}{\frac{1}{3}} = \frac{2}{5} \times 3 = \frac{2 \times 3}{5} = \frac{6}{5}$$

$$e = -\frac{\frac{5}{2}}{\frac{10}{3}} = -\frac{5}{2} \times \frac{3}{10} = -\frac{\textcolor{red}{5} \times 3}{2 \times \textcolor{red}{10}} = -\frac{\textcolor{red}{1} \times 3}{2 \times \textcolor{red}{2}} = -\frac{3}{4}$$

**Exercice 4. Pêle-mêle**

$$a = 2 + 3 \times \frac{4}{5} = 2 + \frac{3 \times 4}{5} = 2 + \frac{12}{5} = \frac{22}{5}$$

$$b = \left(\frac{3}{2} - 1\right) \times 4 = \frac{1}{2} \times 4 = 2$$

$$c = \frac{3}{2 + \frac{1}{4}} = \frac{3}{\frac{9}{4}} = 3 \times \frac{4}{9} = \frac{4}{3}$$

$$d = \frac{3}{2} + \frac{3}{\frac{1}{4}} = \frac{3}{2} + 3 \times 4 = \frac{3}{2} + 12 = \frac{27}{2}$$

$$e = \frac{2 + \frac{1}{3}}{2 - \frac{1}{3}} = \frac{\frac{7}{3}}{\frac{5}{3}} = \frac{7}{3} \times \frac{3}{5} = \frac{7}{5}$$

$$f = \frac{12}{7} \times \frac{14}{9} \times \frac{15}{8} = \frac{4}{1} \times \frac{2}{3} \times \frac{15}{8} = \frac{8 \times 15}{3 \times 8} = 5$$

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

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