

Manipulation des fractions

Exercice 1

Simplifier pour obtenir une fraction irréductible.

exemple) $\frac{15}{25} = \frac{3 \times 5}{5 \times 5} = \frac{3}{5}$

a) $\frac{21}{18} =$

b) $\frac{14}{30} =$

c) $\frac{105}{49} =$

d) $\frac{70}{35} =$

e) $\frac{30}{20} =$

f) $\frac{49}{35} =$

g) $\frac{30}{28} =$

h) $\frac{49}{28} =$

i) $\frac{10}{8} =$

j) $\frac{343}{21} =$

k) $\frac{25}{5} =$

l) $\frac{15}{10} =$

Exercice 2

Sommer puis simplifier pour obtenir une fraction irréductible.

exemple) $\frac{-2}{147} + \frac{16}{147} = \frac{-2+16}{147} = \frac{14}{147} = \frac{2 \times 7}{21 \times 7} = \frac{2}{21}$

a) $\frac{4}{42} + \frac{3}{42} =$

b) $\frac{-8}{27} + \frac{23}{27} =$

c) $\frac{-15}{4} + \frac{35}{4} =$

d) $\frac{46}{35} + \frac{3}{35} =$

e) $\frac{28}{12} + \frac{-10}{12} =$

f) $\frac{117}{6} + \frac{-12}{6} =$

g) $\frac{17}{7} + \frac{4}{7} =$

h) $\frac{17}{105} + \frac{13}{105} =$

i) $\frac{1}{10} + \frac{74}{10} =$

j) $\frac{11}{105} + \frac{3}{105} =$

k) $\frac{-13}{25} + \frac{138}{25} =$

l) $\frac{12}{42} + \frac{6}{42} =$

Exercice 3

Mettre au même dénominateur pour sommer puis simplifier pour obtenir une fraction irréductible.

exemple) $\frac{-5}{3} + \frac{25}{6} = \frac{-5 \times 2}{3 \times 2} + \frac{25}{6} = \frac{-10}{6} + \frac{25}{6} = \frac{15}{6} = \frac{5 \times 3}{2 \times 3} = \frac{5}{2}$

a) $\frac{11}{21} + \frac{6}{42} =$

b) $\frac{5}{3} + \frac{70}{21} =$

c) $\frac{-2}{5} + \frac{45}{25} =$

d) $\frac{2}{2} + \frac{-8}{14} =$

e) $\frac{-3}{1} + \frac{24}{2} =$

f) $\frac{4}{2} + \frac{22}{10} =$

g) $\frac{5}{1} + \frac{-8}{4} =$

h) $\frac{7}{3} + \frac{-10}{12} =$

i) $\frac{-3}{14} + \frac{57}{70} =$

j) $\frac{13}{7} + \frac{-4}{21} =$

k) $\frac{1}{6} + \frac{-3}{42} =$

l) $\frac{5}{35} + \frac{-9}{105} =$

Corrections

Exercice 1 corrigé

$$\text{a)} \quad \frac{21}{18} = \frac{7 \times 3}{6 \times 3} = \frac{7}{6}$$

$$\text{b)} \quad \frac{14}{30} = \frac{7 \times 2}{15 \times 2} = \frac{7}{15}$$

$$\text{c)} \quad \frac{105}{49} = \frac{15 \times 7}{7 \times 7} = \frac{15}{7}$$

$$\text{d)} \quad \frac{70}{35} = \frac{2 \times 35}{1 \times 35} = \frac{2}{1} = 2$$

$$\text{e)} \quad \frac{30}{20} = \frac{3 \times 10}{2 \times 10} = \frac{3}{2}$$

$$\text{f)} \quad \frac{49}{35} = \frac{7 \times 7}{5 \times 7} = \frac{7}{5}$$

$$\text{g)} \quad \frac{30}{28} = \frac{15 \times 2}{14 \times 2} = \frac{15}{14}$$

$$\text{h)} \quad \frac{49}{28} = \frac{7 \times 7}{4 \times 7} = \frac{7}{4}$$

$$\text{i)} \quad \frac{10}{8} = \frac{5 \times 2}{4 \times 2} = \frac{5}{4}$$

$$\text{j)} \quad \frac{343}{21} = \frac{49 \times 7}{3 \times 7} = \frac{49}{3}$$

$$\text{k)} \quad \frac{25}{5} = \frac{5 \times 5}{1 \times 5} = \frac{5}{1} = 5$$

$$\text{l)} \quad \frac{15}{10} = \frac{3 \times 5}{2 \times 5} = \frac{3}{2}$$

Exercice 2 corrigé

$$\text{a)} \quad \frac{4}{42} + \frac{3}{42} = \frac{4+3}{42} = \frac{7}{42} = \frac{1 \times 7}{6 \times 7} = \frac{1}{6}$$

$$\text{b)} \quad \frac{-8}{27} + \frac{23}{27} = \frac{-8+23}{27} = \frac{15}{27} = \frac{5 \times 3}{9 \times 3} = \frac{5}{9}$$

$$\text{c)} \quad \frac{-15}{4} + \frac{35}{4} = \frac{-15+35}{4} = \frac{20}{4} = \frac{5 \times 4}{1 \times 4} = \frac{5}{1} = 5$$

$$\text{d)} \quad \frac{46}{35} + \frac{3}{35} = \frac{46+3}{35} = \frac{49}{35} = \frac{7 \times 7}{5 \times 7} = \frac{7}{5}$$

$$\text{e)} \quad \frac{28}{12} + \frac{-10}{12} = \frac{28+-10}{12} = \frac{18}{12} = \frac{3 \times 6}{2 \times 6} = \frac{3}{2}$$

$$\text{f)} \quad \frac{117}{6} + \frac{-12}{6} = \frac{117+-12}{6} = \frac{105}{6} = \frac{35 \times 3}{2 \times 3} = \frac{35}{2}$$

$$\text{g)} \quad \frac{17}{7} + \frac{4}{7} = \frac{17+4}{7} = \frac{21}{7} = \frac{3 \times 7}{1 \times 7} = \frac{3}{1} = 3$$

$$\text{h)} \quad \frac{17}{105} + \frac{13}{105} = \frac{17+13}{105} = \frac{30}{105} = \frac{2 \times 15}{7 \times 15} = \frac{2}{7}$$

$$\text{i)} \quad \frac{1}{10} + \frac{74}{10} = \frac{1+74}{10} = \frac{75}{10} = \frac{15 \times 5}{2 \times 5} = \frac{15}{2}$$

$$\text{j)} \quad \frac{11}{105} + \frac{3}{105} = \frac{11+3}{105} = \frac{14}{105} = \frac{2 \times 7}{15 \times 7} = \frac{2}{15}$$

$$\text{k)} \quad \frac{-13}{25} + \frac{138}{25} = \frac{-13+138}{25} = \frac{125}{25} = \frac{5 \times 25}{1 \times 25} = \frac{5}{1} = 5$$

$$\text{l)} \quad \frac{12}{42} + \frac{6}{42} = \frac{12+6}{42} = \frac{18}{42} = \frac{3 \times 6}{7 \times 6} = \frac{3}{7}$$

Exercice 3 corrigé

$$\text{a)} \quad \frac{11}{21} + \frac{6}{42} = \frac{11 \times 2}{21 \times 2} + \frac{6}{42} = \frac{22}{42} + \frac{6}{42} = \frac{28}{42} = \frac{2 \times 14}{3 \times 14} = \frac{2}{3}$$

$$\text{b)} \quad \frac{5}{3} + \frac{70}{21} = \frac{5 \times 7}{3 \times 7} + \frac{70}{21} = \frac{35}{21} + \frac{70}{21} = \frac{105}{21} = \frac{5 \times 21}{1 \times 21} = \frac{5}{1} = 5$$

$$\text{c)} \quad \frac{-2}{5} + \frac{45}{25} = \frac{-2 \times 5}{5 \times 5} + \frac{45}{25} = \frac{-10}{25} + \frac{45}{25} = \frac{35}{25} = \frac{7 \times 5}{5 \times 5} = \frac{7}{5}$$

$$\text{d)} \quad \frac{2}{2} + \frac{-8}{14} = \frac{2 \times 7}{2 \times 7} + \frac{-8}{14} = \frac{14}{14} + \frac{-8}{14} = \frac{6}{14} = \frac{3 \times 2}{7 \times 2} = \frac{3}{7}$$

$$\text{e)} \quad \frac{-3}{1} + \frac{24}{2} = \frac{-3 \times 2}{1 \times 2} + \frac{24}{2} = \frac{-6}{2} + \frac{24}{2} = \frac{18}{2} = \frac{9 \times 2}{1 \times 2} = \frac{9}{1} = 9$$

$$\text{f)} \quad \frac{4}{2} + \frac{22}{10} = \frac{4 \times 5}{2 \times 5} + \frac{22}{10} = \frac{20}{10} + \frac{22}{10} = \frac{42}{10} = \frac{21 \times 2}{5 \times 2} = \frac{21}{5}$$

$$\text{g)} \quad \frac{5}{1} + \frac{-8}{4} = \frac{5 \times 4}{1 \times 4} + \frac{-8}{4} = \frac{20}{4} + \frac{-8}{4} = \frac{12}{4} = \frac{3 \times 4}{1 \times 4} = \frac{3}{1} = 3$$

$$\text{h)} \quad \frac{7}{3} + \frac{-10}{12} = \frac{7 \times 4}{3 \times 4} + \frac{-10}{12} = \frac{28}{12} + \frac{-10}{12} = \frac{18}{12} = \frac{3 \times 6}{2 \times 6} = \frac{3}{2}$$

$$\text{i)} \quad \frac{-3}{14} + \frac{57}{70} = \frac{-3 \times 5}{14 \times 5} + \frac{57}{70} = \frac{-15}{70} + \frac{57}{70} = \frac{42}{70} = \frac{3 \times 14}{5 \times 14} = \frac{3}{5}$$

$$\text{j)} \quad \frac{13}{7} + \frac{-4}{21} = \frac{13 \times 3}{7 \times 3} + \frac{-4}{21} = \frac{39}{21} + \frac{-4}{21} = \frac{35}{21} = \frac{5 \times 7}{3 \times 7} = \frac{5}{3}$$

$$\text{k)} \quad \frac{1}{6} + \frac{-3}{42} = \frac{1 \times 7}{6 \times 7} + \frac{-3}{42} = \frac{7}{42} + \frac{-3}{42} = \frac{4}{42} = \frac{2 \times 2}{21 \times 2} = \frac{2}{21}$$

$$\text{l)} \quad \frac{5}{35} + \frac{-9}{105} = \frac{5 \times 3}{35 \times 3} + \frac{-9}{105} = \frac{15}{105} + \frac{-9}{105} = \frac{6}{105} = \frac{2 \times 3}{35 \times 3} = \frac{2}{35}$$