

Calculs fractionnaires

Exercice 1

Calculer et donner le résultat sous forme de fractions simplifiées.

a. $\frac{3}{4} + \frac{2}{6}$

b. $\frac{2}{15} + \frac{3}{20}$

c. $\frac{5}{12} - \frac{9}{8}$

d. $\frac{5}{6} - \frac{13}{9}$

e. $\frac{5}{12} - \frac{2}{15}$

f. $\frac{15}{66} - \frac{10}{44}$

Correction 1

a. $\frac{3}{4} + \frac{2}{6} = \frac{9}{12} + \frac{4}{12} = \frac{9+4}{12} = \frac{13}{12}$

b. $\frac{2}{15} + \frac{3}{20} = \frac{8}{60} + \frac{9}{60} = \frac{8+9}{60} = \frac{17}{60}$

c. $\frac{5}{12} - \frac{9}{8} = \frac{10}{24} - \frac{27}{24} = \frac{10-27}{24} = \frac{-17}{24} = -\frac{17}{24}$

d. $\frac{5}{6} - \frac{13}{9} = \frac{15}{18} - \frac{26}{18} = \frac{15-26}{18} = \frac{-11}{18} = -\frac{11}{18}$

e. $\frac{5}{12} - \frac{2}{15} = \frac{25}{60} - \frac{8}{60} = \frac{25-8}{60} = \frac{17}{60}$

f. $\frac{15}{66} - \frac{10}{44} = \frac{5}{22} - \frac{5}{22} = 0$

Exercice 2

Effectuer les calculs suivants, en détaillant les calculs et en donnant les résultats sous forme de fractions irréductibles :

$A = \frac{2}{3} + \frac{5}{3} \times \frac{1}{15}$; $B = \left(1 - \frac{3}{7}\right) \div \frac{12}{5}$

$C = \frac{9}{\frac{2}{3}}$; $D = \frac{\frac{3}{4} + 3}{\frac{1}{2} + 2}$

$A = \frac{2}{3} + \frac{5}{3} \times \frac{1}{15} = \frac{2}{3} + \frac{1}{3} \times \frac{2}{3} = \frac{2}{3} + \frac{1}{9} = \frac{6}{9} + \frac{1}{9} = \frac{7}{9}$

$B = \left(1 - \frac{3}{7}\right) \div \frac{12}{5} = \left(\frac{7}{7} - \frac{3}{7}\right) \div \frac{12}{5} = \frac{4}{7} \times \frac{5}{12} = \frac{5}{21}$

$C = \frac{9}{\frac{2}{3}} = \frac{9}{\frac{2}{3}} = \frac{9}{1} \times \frac{3}{2} = \frac{3}{2} \times \frac{1}{1} = \frac{3}{2}$

$D = \frac{\frac{3}{4} + 3}{\frac{1}{2} + 2} = \frac{\frac{3+12}{4}}{\frac{1+4}{2}} = \frac{\frac{15}{4}}{\frac{5}{2}} = \frac{15}{4} \times \frac{2}{5} = \frac{30}{20} = \frac{3}{2}$

Correction 2

Exercice 3

Donner la valeur des expressions ci-dessous sous la forme de fractions irréductibles :

a. $\frac{2}{5} + 1$

b. $\frac{3}{4} \times \frac{2}{5}$

c. $\frac{1}{3} \times \frac{2}{5} + \frac{2}{5}$

d. $\frac{\frac{3}{5}}{\frac{2}{5}}$

e. $\frac{\frac{3}{2} - \frac{10}{6}}{\frac{2}{7} + \frac{1}{3}}$

f. $3 - \frac{5}{1 + \frac{1}{3}}$

c. $\frac{1}{3} \times \frac{2}{5} + \frac{2}{5} = \frac{2}{15} + \frac{6}{15} = \frac{8}{15}$

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

e. $\frac{\frac{3}{2} - \frac{10}{6}}{\frac{2}{7} + \frac{1}{3}} = \frac{\frac{9}{6} - \frac{10}{6}}{\frac{2}{21} + \frac{1}{21}} = \frac{-\frac{1}{6}}{\frac{3}{21}} = -\frac{1}{6} \times \frac{21}{3} = -\frac{7}{6}$

f. $3 - \frac{5}{1 + \frac{1}{3}} = 3 - \frac{5}{\frac{3}{3} + \frac{1}{3}} = 3 - \frac{5}{\frac{4}{3}} = 3 - 5 \times \frac{3}{4} = 3 - \frac{15}{4} = \frac{12}{4} - \frac{15}{4} = -\frac{3}{4}$

Correction 3

a. $\frac{2}{5} + 1 = \frac{2}{5} + \frac{5}{5} = \frac{7}{5}$

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

Exercice 4

Effectuer les calculs ci-dessous et donner les résultats sous forme de fractions irréductibles :

a. $\frac{2}{7} - \frac{15}{7} \div \frac{5}{4}$ b. $\left(\frac{1}{4} - \frac{1}{5}\right) \times \left(7 + \frac{37}{9}\right)$ c. $\frac{\frac{4}{5} + \frac{3}{10}}{\frac{2}{5} - \frac{3}{5}}$

Correction 4

a. $\frac{2}{7} - \frac{15}{7} \div \frac{5}{4} = \frac{2}{7} - \frac{15}{7} \times \frac{4}{5} = \frac{2}{7} - \frac{15}{7} \times \frac{4}{5} = \frac{2}{7} - \frac{12}{7} = \frac{2-12}{7} = -\frac{10}{7}$

b. $\left(\frac{1}{4} - \frac{1}{5}\right) \times \left(7 + \frac{37}{9}\right) = \left(\frac{5}{20} - \frac{4}{20}\right) \times \left(\frac{63}{9} + \frac{37}{9}\right) = \frac{1}{20} \times \frac{100}{9} = \frac{1}{20} \times \frac{100}{9} = \frac{5}{9}$

c. $\frac{\frac{4}{5} + \frac{3}{10}}{\frac{2}{5} - \frac{3}{5}} = \frac{\frac{40}{50} + \frac{9}{50}}{\frac{40}{50} - \frac{30}{50}} = \frac{\frac{49}{50}}{\frac{10}{50}} = \frac{49}{50} \times \frac{50}{10} = \frac{49}{10}$