

**Exercice 1**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{-11}{38} \div \frac{-1}{22} - \frac{1}{19} \\ B = \frac{11}{20} - \frac{7}{4} \div \frac{-15}{16} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-3}{14} + \frac{-5}{13} \div \frac{-7}{39} \\ D = \frac{-8}{3} \times \frac{15}{4} \div \frac{5}{24} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{1}{2} \times \left( \frac{-15}{4} + \frac{1}{12} \right) \\ F = \frac{5}{14} + \frac{-11}{21} - \frac{-11}{10} \end{array}$$

**Exercice 2**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{-15}{13} \div \frac{14}{13} \times \frac{-13}{15} \\ B = \frac{2}{13} \div \left( \frac{-9}{2} + \frac{7}{2} \right) \end{array} \quad \left| \quad \begin{array}{l} C = \frac{11}{10} + \frac{-6}{19} \div \frac{-1}{38} \\ D = \frac{-11}{4} + \frac{16}{5} \times \frac{9}{4} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-1}{2} - \frac{-13}{33} \times \frac{11}{3} \\ F = \frac{-2}{15} - \frac{-16}{11} \div \frac{8}{11} \end{array}$$

**Exercice 3**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{-10}{9} \div \frac{10}{11} - \frac{-11}{2} \\ B = \frac{5}{2} - \frac{3}{4} \div \frac{-2}{7} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{5}{6} \times \frac{14}{5} - \frac{-11}{2} \\ D = \frac{-4}{13} - \left( \frac{3}{13} + \frac{-1}{13} \right) \end{array} \quad \left| \quad \begin{array}{l} E = \frac{1}{4} - \frac{-9}{26} \div \frac{-1}{26} \\ F = \frac{-1}{2} + \frac{-11}{4} \div \frac{5}{39} \end{array}$$

**Exercice 4**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{-1}{36} - \frac{1}{16} \div \frac{-1}{20} \\ B = \frac{7}{20} \div \left( \frac{3}{5} + \frac{3}{10} \right) \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-16}{15} + \frac{14}{5} \div \frac{-1}{13} \\ D = \frac{-15}{2} + \frac{-3}{2} \div \frac{-1}{28} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{1}{16} - \frac{-11}{24} \div \frac{-1}{39} \\ F = \frac{-3}{20} - \frac{-15}{7} \div \frac{-6}{35} \end{array}$$

**Exercice 5**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{3}{25} \div \left( \frac{-1}{2} + \frac{3}{10} \right) \\ B = \frac{-7}{10} \times \frac{-10}{9} - \frac{11}{3} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-14}{13} \times \frac{-13}{18} \div \frac{-1}{16} \\ D = \frac{11}{3} \times \frac{-1}{2} \div \frac{-5}{3} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-14}{5} + \frac{-5}{14} \times \frac{-7}{25} \\ F = \frac{13}{21} \div \left( \frac{3}{10} + \frac{-7}{6} \right) \end{array}$$

**Exercice 6**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$\begin{array}{l} A = \frac{-11}{16} + \frac{-13}{4} - \frac{1}{8} \\ B = \frac{1}{2} + \frac{13}{16} \times \frac{-16}{13} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-7}{4} \div \frac{5}{4} \times \frac{-16}{7} \\ D = \frac{4}{19} + \frac{6}{19} \div \frac{1}{14} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-8}{5} \times \left( \frac{13}{6} - \frac{7}{24} \right) \\ F = \frac{5}{3} - \frac{-13}{8} \div \frac{-13}{20} \end{array}$$

**Corrigé de l'exercice 1**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{-11}{38} \div \frac{-1}{22} - \frac{1}{19}$$

$$A = \frac{-11}{38} \times -22 - \frac{1}{19}$$

$$A = \frac{-11}{19 \times \cancel{2}} \times -11 \times \cancel{2} - \frac{1}{19}$$

$$A = \frac{121}{19} - \frac{1}{19}$$

$$A = \frac{120}{19}$$

$$B = \frac{11}{20} - \frac{7}{4} \div \frac{-15}{16}$$

$$B = \frac{11}{20} - \frac{7}{4} \times \frac{-16}{15}$$

$$B = \frac{11}{20} - \frac{7}{1 \times \cancel{4}} \times \frac{-4 \times \cancel{4}}{15}$$

$$B = \frac{11}{20} - \frac{-28}{15}$$

$$B = \frac{11 \times 3}{20 \times 3} - \frac{-28 \times 4}{15 \times 4}$$

$$B = \frac{145}{60}$$

$$B = \frac{29 \times 5}{12 \times 5}$$

$$B = \frac{29}{12}$$

$$C = \frac{-3}{14} + \frac{-5}{13} \div \frac{-7}{39}$$

$$C = \frac{-3}{14} + \frac{-5}{13} \times \frac{-39}{7}$$

$$C = \frac{-3}{14} + \frac{-5}{1 \times \cancel{13}} \times \frac{-3 \times \cancel{13}}{7}$$

$$C = \frac{-3}{14} + \frac{15}{7}$$

$$C = \frac{-3}{14} + \frac{15 \times 2}{7 \times 2}$$

$$C = \frac{27}{14}$$

$$D = \frac{-8}{3} \times \frac{15}{4} \div \frac{5}{24}$$

$$D = \frac{-2 \times \cancel{4}}{1 \times \cancel{3}} \times \frac{5 \times \cancel{3}}{1 \times \cancel{4}} \div \frac{5}{24}$$

$$D = -10 \div \frac{5}{24}$$

$$D = -10 \times \frac{24}{5}$$

$$D = -2 \times \cancel{5} \times \frac{24}{1 \times \cancel{5}}$$

$$D = -48$$

$$E = \frac{1}{2} \times \left( \frac{-15}{4} + \frac{1}{12} \right)$$

$$E = \frac{1}{2} \times \left( \frac{-15 \times 3}{4 \times 3} + \frac{1}{12} \right)$$

$$E = \frac{1}{2} \times \frac{-44}{12}$$

$$E = \frac{1}{2} \times \frac{-11 \times 4}{3 \times 4}$$

$$E = \frac{1}{2} \times \frac{-11}{3}$$

$$E = \frac{-11}{6}$$

$$F = \frac{5}{14} + \frac{-11}{21} - \frac{-11}{10}$$

$$F = \frac{5 \times 3}{14 \times 3} + \frac{-11 \times 2}{21 \times 2} - \frac{-11}{10}$$

$$F = \frac{-7}{42} - \frac{-11}{10}$$

$$F = \frac{-1 \times 7}{6 \times 7} - \frac{-11}{10}$$

$$F = \frac{-1}{6} - \frac{-11}{10}$$

$$F = \frac{-1 \times 5}{6 \times 5} - \frac{-11 \times 3}{10 \times 3}$$

$$F = \frac{28}{30}$$

$$F = \frac{14 \times 2}{15 \times 2}$$

$$F = \frac{14}{15}$$

**Corrigé de l'exercice 2**

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{-15}{13} \div \frac{14}{13} \times \frac{-13}{15}$$

$$A = \frac{-15}{13} \times \frac{13}{14} \times \frac{-13}{15}$$

$$A = \frac{-15}{1 \times \cancel{13}} \times \frac{1 \times \cancel{13}}{14} \times \frac{-13}{15}$$

$$A = \frac{-15}{14} \times \frac{-13}{15}$$

$$A = \frac{-1 \times \cancel{15}}{14} \times \frac{-13}{1 \times \cancel{15}}$$

$$A = \frac{13}{14}$$

$$B = \frac{2}{13} \div \left( \frac{-9}{2} + \frac{7}{2} \right)$$

$$B = \frac{2}{13} \div \frac{-2}{2}$$

$$B = \frac{2}{13} \div \frac{-1 \times 2}{1 \times 2}$$

$$B = \frac{2}{13} \div -1$$

$$B = \frac{2}{13} \times -1$$

$$B = \frac{-2}{13}$$

$$C = \frac{11}{10} + \frac{-6}{19} \div \frac{-1}{38}$$

$$C = \frac{11}{10} + \frac{-6}{19} \times -38$$

$$C = \frac{11}{10} + \frac{-6}{1 \times \cancel{19}} \times -2 \times \cancel{19}$$

$$C = \frac{11}{10} + 12$$

$$C = \frac{11}{10} + \frac{12 \times 10}{1 \times 10}$$

$$C = \frac{131}{10}$$

$$D = \frac{-11}{4} + \frac{16}{5} \times \frac{9}{4}$$

$$D = \frac{-11}{4} + \frac{4 \times \cancel{4}}{5} \times \frac{9}{1 \times \cancel{4}}$$

$$D = \frac{-11}{4} + \frac{36}{5}$$

$$D = \frac{-11 \times 5}{4 \times 5} + \frac{36 \times 4}{5 \times 4}$$

$$D = \frac{89}{20}$$

$$E = \frac{-1}{2} - \frac{-13}{33} \times \frac{11}{3}$$

$$E = \frac{-1}{2} - \frac{-13}{3 \times \cancel{11}} \times \frac{1 \times \cancel{11}}{3}$$

$$E = \frac{-1}{2} - \frac{-13}{9}$$

$$E = \frac{-1 \times 9}{2 \times 9} - \frac{-13 \times 2}{9 \times 2}$$

$$E = \frac{17}{18}$$

$$F = \frac{-2}{15} - \frac{-16}{11} \div \frac{8}{11}$$

$$F = \frac{-2}{15} - \frac{-16}{11} \times \frac{11}{8}$$

$$F = \frac{-2}{15} - \frac{-2 \times \cancel{8}}{1 \times \cancel{11}} \times \frac{1 \times \cancel{11}}{1 \times \cancel{8}}$$

$$F = \frac{-2}{15} - -2$$

$$F = \frac{-2}{15} - \frac{-2 \times 15}{1 \times 15}$$

$$F = \frac{28}{15}$$

### Corrigé de l'exercice 3

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{-10}{9} \div \frac{10}{11} - \frac{-11}{2}$$

$$A = \frac{-10}{9} \times \frac{11}{10} - \frac{-11}{2}$$

$$A = \frac{-1 \times \cancel{10}}{9} \times \frac{11}{1 \times \cancel{10}} - \frac{-11}{2}$$

$$A = \frac{-11}{9} - \frac{-11}{2}$$

$$A = \frac{-11 \times 2}{9 \times 2} - \frac{-11 \times 9}{2 \times 9}$$

$$A = \frac{77}{18}$$

$$B = \frac{5}{2} - \frac{3}{4} \div \frac{-2}{7}$$

$$B = \frac{5}{2} - \frac{3}{4} \times \frac{-7}{2}$$

$$B = \frac{5}{2} - \frac{-21}{8}$$

$$B = \frac{5 \times 4}{2 \times 4} - \frac{-21}{8}$$

$$B = \frac{41}{8}$$

$$C = \frac{5}{6} \times \frac{14}{5} - \frac{-11}{2}$$

$$C = \frac{1 \times \cancel{5}}{3 \times \cancel{2}} \times \frac{7 \times \cancel{2}}{1 \times \cancel{5}} - \frac{-11}{2}$$

$$C = \frac{7}{3} - \frac{-11}{2}$$

$$C = \frac{7 \times 2}{3 \times 2} - \frac{-11 \times 3}{2 \times 3}$$

$$C = \frac{47}{6}$$

$$D = \frac{-4}{13} - \left( \frac{3}{13} + \frac{-1}{13} \right)$$

$$D = \frac{-4}{13} - \frac{2}{13}$$

$$D = \frac{-6}{13}$$

$$E = \frac{1}{4} - \frac{-9}{26} \div \frac{-1}{26}$$

$$E = \frac{1}{4} - \frac{-9}{26} \times -26$$

$$E = \frac{1}{4} - \frac{-9}{1 \times \cancel{26}} \times -1 \times \cancel{26}$$

$$E = \frac{1}{4} - 9$$

$$E = \frac{1}{4} - \frac{9 \times 4}{1 \times 4}$$

$$E = \frac{-35}{4}$$

$$F = \frac{-1}{2} + \frac{-11}{4} \div \frac{5}{39}$$

$$F = \frac{-1}{2} + \frac{-11}{4} \times \frac{39}{5}$$

$$F = \frac{-1}{2} + \frac{-429}{20}$$

$$F = \frac{-1 \times 10}{2 \times 10} + \frac{-429}{20}$$

$$F = \frac{-439}{20}$$

### Corrigé de l'exercice 4

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{-1}{36} - \frac{1}{16} \div \frac{-1}{20}$$

$$A = \frac{-1}{36} - \frac{1}{16} \times -20$$

$$A = \frac{-1}{36} - \frac{1}{4 \times \cancel{4}} \times -5 \times \cancel{4}$$

$$A = \frac{-1}{36} - \frac{-5}{4}$$

$$A = \frac{-1}{36} - \frac{-5 \times 9}{4 \times 9}$$

$$A = \frac{44}{36}$$

$$A = \frac{11 \times 4}{9 \times 4}$$

$$A = \frac{11}{9}$$

$$B = \frac{7}{20} \div \left( \frac{3}{5} + \frac{3}{10} \right)$$

$$B = \frac{7}{20} \div \left( \frac{3 \times 2}{5 \times 2} + \frac{3}{10} \right)$$

$$B = \frac{7}{20} \div \frac{9}{10}$$

$$B = \frac{7}{20} \times \frac{10}{9}$$

$$B = \frac{7}{2 \times \cancel{10}} \times \frac{1 \times \cancel{10}}{9}$$

$$B = \frac{7}{18}$$

$$C = \frac{-16}{15} + \frac{14}{5} \div \frac{-1}{13}$$

$$C = \frac{-16}{15} + \frac{14}{5} \times -13$$

$$C = \frac{-16}{15} + \frac{-182}{5}$$

$$C = \frac{-16}{15} + \frac{-182 \times 3}{5 \times 3}$$

$$C = \frac{-562}{15}$$

$$D = \frac{-15}{2} + \frac{-3}{2} \div \frac{-1}{28}$$

$$D = \frac{-15}{2} + \frac{-3}{2} \times -28$$

$$D = \frac{-15}{2} + \frac{-3}{1 \times \cancel{2}} \times -14 \times \cancel{2}$$

$$D = \frac{-15}{2} + 42$$

$$D = \frac{-15}{2} + \frac{42 \times 2}{1 \times 2}$$

$$D = \frac{69}{2}$$

$$E = \frac{1}{16} - \frac{-11}{24} \div \frac{-1}{39}$$

$$E = \frac{1}{16} - \frac{-11}{24} \times -39$$

$$E = \frac{1}{16} - \frac{-11}{8 \times \cancel{3}} \times -13 \times \cancel{3}$$

$$E = \frac{1}{16} - \frac{143}{8}$$

$$E = \frac{1}{16} - \frac{143 \times 2}{8 \times 2}$$

$$E = \frac{-285}{16}$$

$$F = \frac{-3}{20} - \frac{-15}{7} \div \frac{-6}{35}$$

$$F = \frac{-3}{20} - \frac{-15}{7} \times \frac{-35}{6}$$

$$F = \frac{-3}{20} - \frac{-5 \times \cancel{3}}{1 \times \cancel{7}} \times \frac{-5 \times \cancel{7}}{2 \times \cancel{3}}$$

$$F = \frac{-3}{20} - \frac{25}{2}$$

$$F = \frac{-3}{20} - \frac{25 \times 10}{2 \times 10}$$

$$F = \frac{-253}{20}$$

### Corrigé de l'exercice 5

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{3}{25} \div \left( \frac{-1}{2} + \frac{3}{10} \right)$$

$$A = \frac{3}{25} \div \left( \frac{-1 \times 5}{2 \times 5} + \frac{3}{10} \right)$$

$$A = \frac{3}{25} \div \frac{-2}{10}$$

$$A = \frac{3}{25} \div \frac{-1 \times 2}{5 \times 2}$$

$$A = \frac{3}{25} \div \frac{-1}{5}$$

$$A = \frac{3}{25} \times -5$$

$$A = \frac{3}{5 \times \cancel{5}} \times -1 \times \cancel{5}$$

$$A = \frac{-3}{5}$$

$$B = \frac{-7}{10} \times \frac{-10}{9} - \frac{11}{3}$$

$$B = \frac{-7}{1 \times \cancel{10}} \times \frac{-1 \times \cancel{10}}{9} - \frac{11}{3}$$

$$B = \frac{7}{9} - \frac{11}{3}$$

$$B = \frac{7}{9} - \frac{11 \times 3}{3 \times 3}$$

$$B = \frac{-26}{9}$$

$$C = \frac{-14}{13} \times \frac{-13}{18} \div \frac{-1}{16}$$

$$C = \frac{-7 \times \cancel{2}}{1 \times \cancel{13}} \times \frac{-1 \times \cancel{13}}{9 \times \cancel{2}} \div \frac{-1}{16}$$

$$C = \frac{7}{9} \div \frac{-1}{16}$$

$$C = \frac{7}{9} \times -16$$

$$C = \frac{-112}{9}$$

$$D = \frac{11}{3} \times \frac{-1}{2} \div \frac{-5}{3}$$

$$D = \frac{-11}{6} \div \frac{-5}{3}$$

$$D = \frac{-11}{6} \times \frac{-3}{5}$$

$$D = \frac{-11}{2 \times \cancel{3}} \times \frac{-1 \times \cancel{3}}{5}$$

$$D = \frac{11}{10}$$

$$E = \frac{-14}{5} + \frac{-5}{14} \times \frac{-7}{25}$$

$$E = \frac{-14}{5} + \frac{-1 \times \cancel{5}}{2 \times \cancel{7}} \times \frac{-1 \times \cancel{7}}{5 \times \cancel{5}}$$

$$E = \frac{-14}{5} + \frac{1}{10}$$

$$E = \frac{-14 \times 2}{5 \times 2} + \frac{1}{10}$$

$$E = \frac{-27}{10}$$

$$F = \frac{13}{21} \div \left( \frac{3}{10} + \frac{-7}{6} \right)$$

$$F = \frac{13}{21} \div \left( \frac{3 \times 3}{10 \times 3} + \frac{-7 \times 5}{6 \times 5} \right)$$

$$F = \frac{13}{21} \div \frac{-26}{30}$$

$$F = \frac{13}{21} \div \frac{-13 \times 2}{15 \times 2}$$

$$F = \frac{13}{21} \div \frac{-13}{15}$$

$$F = \frac{13}{21} \times \frac{-15}{13}$$

$$F = \frac{1 \times \cancel{13}}{7 \times \cancel{3}} \times \frac{-5 \times \cancel{3}}{1 \times \cancel{13}}$$

$$F = \frac{-5}{7}$$

### Corrigé de l'exercice 6

Effectuer les calculs suivants et donner le résultat sous la forme d'une fraction simplifiée :

$$A = \frac{-11}{16} + \frac{-13}{4} - \frac{1}{8}$$

$$A = \frac{-11}{16} + \frac{-13 \times 4}{4 \times 4} - \frac{1}{8}$$

$$A = \frac{-63}{16} - \frac{1}{8}$$

$$A = \frac{-63}{16} - \frac{1 \times 2}{8 \times 2}$$

$$A = \frac{-65}{16}$$

$$B = \frac{1}{2} + \frac{13}{16} \times \frac{-16}{13}$$

$$B = \frac{1}{2} + \frac{1 \times \cancel{13}}{1 \times \cancel{16}} \times \frac{-1 \times \cancel{16}}{1 \times \cancel{13}}$$

$$B = \frac{1}{2} + -1$$

$$B = \frac{1}{2} + \frac{-1 \times 2}{1 \times 2}$$

$$B = \frac{-1}{2}$$

$$C = \frac{-7}{4} \div \frac{5}{4} \times \frac{-16}{7}$$

$$C = \frac{-7}{4} \times \frac{4}{5} \times \frac{-16}{7}$$

$$C = \frac{-7}{1 \times \cancel{4}} \times \frac{1 \times \cancel{4}}{5} \times \frac{-16}{7}$$

$$C = \frac{-7}{5} \times \frac{-16}{7}$$

$$C = \frac{-1 \times \cancel{7}}{5} \times \frac{-16}{1 \times \cancel{7}}$$

$$C = \frac{16}{5}$$

$$D = \frac{4}{19} + \frac{6}{19} \div \frac{1}{14}$$

$$D = \frac{4}{19} + \frac{6}{19} \times 14$$

$$D = \frac{4}{19} + \frac{84}{19}$$

$$D = \frac{88}{19}$$

$$E = \frac{-8}{5} \times \left( \frac{13}{6} - \frac{7}{24} \right)$$

$$E = \frac{-8}{5} \times \left( \frac{13 \times 4}{6 \times 4} - \frac{7}{24} \right)$$

$$E = \frac{-8}{5} \times \frac{45}{24}$$

$$E = \frac{-8}{5} \times \frac{15 \times 3}{8 \times 3}$$

$$E = \frac{-8}{5} \times \frac{15}{8}$$

$$E = \frac{-1 \times \cancel{8}}{1 \times \cancel{5}} \times \frac{3 \times \cancel{5}}{1 \times \cancel{8}}$$

$$E = -3$$

$$F = \frac{5}{3} - \frac{-13}{8} \div \frac{-13}{20}$$

$$F = \frac{5}{3} - \frac{-13}{8} \times \frac{-20}{13}$$

$$F = \frac{5}{3} - \frac{-1 \times \cancel{13}}{2 \times \cancel{4}} \times \frac{-5 \times \cancel{4}}{1 \times \cancel{13}}$$

$$F = \frac{5}{3} - \frac{5}{2}$$

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

$$F = \frac{-5}{6}$$