

Exercice 1

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

$$\begin{array}{l} A = \frac{7}{2} + \frac{9}{7} \div \frac{1}{14} \\ B = \frac{-9}{13} \div \frac{-1}{30} \times \frac{-13}{17} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-2}{9} + \frac{13}{3} - \frac{-5}{18} \\ D = \frac{-3}{20} + \frac{6}{31} \div \frac{-1}{31} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-11}{2} - \frac{-11}{4} \div \frac{-7}{4} \\ F = \frac{15}{19} \times \left(\frac{13}{5} + \frac{10}{3} \right) \end{array} \right.$$

Exercice 2

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

$$\begin{array}{l} A = \frac{-4}{3} \times \left(\frac{-15}{2} + \frac{-13}{10} \right) \\ B = \frac{4}{19} + \frac{-12}{19} - \frac{-9}{19} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-10}{21} \times \left(\frac{-13}{4} + \frac{-13}{20} \right) \\ D = \frac{7}{10} \div \frac{-1}{19} - \frac{-9}{10} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-6}{5} + \frac{-3}{34} \div \frac{-15}{34} \\ F = \frac{11}{27} \times \frac{-9}{2} - \frac{2}{3} \end{array} \right.$$

Exercice 3

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

$$\begin{array}{l} A = \frac{10}{7} + \frac{-5}{3} \div \frac{7}{15} \\ B = \frac{-1}{2} + \frac{-9}{5} - \frac{-7}{2} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{4}{9} + \frac{5}{9} - \frac{9}{14} \\ D = \frac{7}{4} \div \frac{5}{3} - \frac{-11}{30} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{11}{3} + \frac{-7}{3} \div \frac{-7}{24} \\ F = \frac{-16}{5} + \frac{3}{38} \div \frac{-3}{19} \end{array} \right.$$

Exercice 4

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

$$\begin{array}{l} A = \frac{1}{16} - \frac{3}{10} \times \frac{5}{8} \\ B = \frac{-14}{13} \div \left(\frac{5}{24} - \frac{1}{8} \right) \end{array} \quad \left| \quad \begin{array}{l} C = \frac{3}{2} - \frac{5}{21} \div \frac{6}{35} \\ D = \frac{-3}{5} + \frac{7}{15} \div \frac{-1}{38} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{1}{28} - \left(\frac{13}{4} + \frac{-3}{2} \right) \\ F = \frac{-1}{4} - \frac{16}{3} + \frac{1}{6} \end{array} \right.$$

Exercice 5

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

$$\begin{array}{l} A = \frac{-5}{31} \times \left(\frac{-11}{5} + \frac{13}{20} \right) \\ B = \frac{5}{4} \times \frac{-2}{3} \div \frac{-5}{21} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{13}{5} \div \frac{-13}{37} + \frac{13}{4} \\ D = \frac{-9}{22} + \frac{-5}{13} \div \frac{10}{13} \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-11}{39} \times \frac{-13}{5} + \frac{11}{30} \\ F = \frac{5}{6} \times \frac{14}{5} - \frac{5}{3} \end{array} \right.$$

Exercice 6

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

$$\begin{array}{l} A = \frac{5}{17} \div \left(\frac{3}{32} - \frac{1}{32} \right) \\ B = \frac{11}{20} - \frac{12}{23} \div \frac{-2}{23} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{7}{5} \div \left(\frac{-5}{21} + \frac{-1}{21} \right) \\ D = \frac{-11}{2} - \left(\frac{7}{3} + \frac{-13}{21} \right) \end{array} \quad \left| \quad \begin{array}{l} E = \frac{-7}{5} + \frac{-3}{20} \times \frac{-7}{3} \\ F = \frac{-8}{5} + \frac{-7}{3} \div \frac{-5}{32} \end{array} \right.$$

Corrigé de l'exercice 1

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

$$A = \frac{7}{2} + \frac{9}{7} \div \frac{1}{14}$$

$$A = \frac{7}{2} + \frac{9}{7} \times 14$$

$$A = \frac{7}{2} + \frac{9}{1 \times 7} \times 2 \times 7$$

$$A = \frac{7}{2} + 18$$

$$A = \frac{7}{2} + \frac{18 \times 2}{1 \times 2}$$

$$A = \frac{43}{2}$$

$$B = \frac{-9}{13} \div \frac{-1}{30} \times \frac{-13}{17}$$

$$B = \frac{-9}{13} \times -30 \times \frac{-13}{17}$$

$$B = \frac{270}{13} \times \frac{-13}{17}$$

$$B = \frac{270}{1 \times 13} \times \frac{-1 \times 13}{17}$$

$$B = \frac{-270}{17}$$

$$C = \frac{-2}{9} + \frac{13}{3} - \frac{-5}{18}$$

$$C = \frac{-2}{9} + \frac{13 \times 3}{3 \times 3} - \frac{-5}{18}$$

$$C = \frac{37}{9} - \frac{-5}{18}$$

$$C = \frac{37 \times 2}{9 \times 2} - \frac{-5}{18}$$

$$C = \frac{79}{18}$$

$$D = \frac{-3}{20} + \frac{6}{31} \div \frac{-1}{31}$$

$$D = \frac{-3}{20} + \frac{6}{31} \times -31$$

$$D = \frac{-3}{20} + \frac{6}{1 \times 31} \times -1 \times 31$$

$$D = \frac{-3}{20} + -6$$

$$D = \frac{-3}{20} + \frac{-6 \times 20}{1 \times 20}$$

$$D = \frac{-123}{20}$$

$$E = \frac{-11}{2} - \frac{-11}{4} \div \frac{-7}{4}$$

$$E = \frac{-11}{2} - \frac{-11}{4} \times \frac{-4}{7}$$

$$E = \frac{-11}{2} - \frac{-11}{1 \times 4} \times \frac{-1 \times 4}{7}$$

$$E = \frac{-11}{2} - \frac{11}{7}$$

$$E = \frac{-11 \times 7}{2 \times 7} - \frac{11 \times 2}{7 \times 2}$$

$$E = \frac{-99}{14}$$

$$F = \frac{15}{19} \times \left(\frac{13}{5} + \frac{10}{3} \right)$$

$$F = \frac{15}{19} \times \left(\frac{13 \times 3}{5 \times 3} + \frac{10 \times 5}{3 \times 5} \right)$$

$$F = \frac{15}{19} \times \frac{89}{15}$$

$$F = \frac{1 \times 15}{19} \times \frac{89}{1 \times 15}$$

$$F = \frac{89}{19}$$

Corrigé de l'exercice 2

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

$$A = \frac{-4}{3} \times \left(\frac{-15}{2} + \frac{-13}{10} \right)$$

$$A = \frac{-4}{3} \times \left(\frac{-15 \times 5}{2 \times 5} + \frac{-13}{10} \right)$$

$$A = \frac{-4}{3} \times \frac{-88}{10}$$

$$A = \frac{-4}{3} \times \frac{-44 \times 2}{5 \times 2}$$

$$A = \frac{-4}{3} \times \frac{-44}{5}$$

$$A = \frac{176}{15}$$

$$B = \frac{4}{19} + \frac{-12}{19} - \frac{-9}{19}$$

$$B = \frac{-8}{19} - \frac{-9}{19}$$

$$B = \frac{1}{19}$$

$$C = \frac{-10}{21} \times \left(\frac{-13}{4} + \frac{-13}{20} \right)$$

$$C = \frac{-10}{21} \times \left(\frac{-13 \times 5}{4 \times 5} + \frac{-13}{20} \right)$$

$$C = \frac{-10}{21} \times \frac{-78}{20}$$

$$C = \frac{-10}{21} \times \frac{-39 \times 2}{10 \times 2}$$

$$C = \frac{-10}{21} \times \frac{-39}{10}$$

$$C = \frac{-1 \times 10}{7 \times 3} \times \frac{-13 \times 3}{1 \times 10}$$

$$C = \frac{13}{7}$$

$$D = \frac{7}{10} \div \frac{-1}{19} - \frac{-9}{10}$$

$$D = \frac{7}{10} \times -19 - \frac{-9}{10}$$

$$D = \frac{-133}{10} - \frac{-9}{10}$$

$$D = \frac{-124}{10}$$

$$D = \frac{-62 \times 2}{5 \times 2}$$

$$D = \frac{-62}{5}$$

$$E = \frac{-6}{5} + \frac{-3}{34} \div \frac{-15}{34}$$

$$E = \frac{-6}{5} + \frac{-3}{34} \times \frac{-34}{15}$$

$$E = \frac{-6}{5} + \frac{-1 \times \cancel{34}}{1 \times \cancel{34}} \times \frac{-1 \times \cancel{34}}{5 \times \cancel{34}}$$

$$E = \frac{-6}{5} + \frac{1}{5}$$

$$E = \frac{-5}{5}$$

$$E = \frac{-1 \times 5}{1 \times 5}$$

$$E = -1$$

$$F = \frac{11}{27} \times \frac{-9}{2} - \frac{2}{3}$$

$$F = \frac{11}{3 \times \cancel{9}} \times \frac{-1 \times \cancel{9}}{2} - \frac{2}{3}$$

$$F = \frac{-11}{6} - \frac{2}{3}$$

$$F = \frac{-11}{6} - \frac{2 \times 2}{3 \times 2}$$

$$F = \frac{-15}{6}$$

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

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

Corrigé de l'exercice 3

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

$$A = \frac{10}{7} + \frac{-5}{3} \div \frac{7}{15}$$

$$A = \frac{10}{7} + \frac{-5}{3} \times \frac{15}{7}$$

$$A = \frac{10}{7} + \frac{-5}{1 \times \cancel{3}} \times \frac{5 \times \cancel{3}}{7}$$

$$A = \frac{10}{7} + \frac{-25}{7}$$

$$A = \frac{-15}{7}$$

$$B = \frac{-1}{2} + \frac{-9}{5} - \frac{-7}{2}$$

$$B = \frac{-1 \times 5}{2 \times 5} + \frac{-9 \times 2}{5 \times 2} - \frac{-7}{2}$$

$$B = \frac{-23}{10} - \frac{-7}{2}$$

$$B = \frac{-23}{10} - \frac{-7 \times 5}{2 \times 5}$$

$$B = \frac{12}{10}$$

$$B = \frac{6 \times 2}{5 \times 2}$$

$$B = \frac{6}{5}$$

$$C = \frac{4}{9} + \frac{5}{9} - \frac{9}{14}$$

$$C = \frac{9}{9} - \frac{9}{14}$$

$$C = \frac{1 \times 9}{1 \times 9} - \frac{9}{14}$$

$$C = 1 - \frac{9}{14}$$

$$C = \frac{1 \times 14}{1 \times 14} - \frac{9}{14}$$

$$C = \frac{5}{14}$$

$$D = \frac{7}{4} \div \frac{5}{3} - \frac{-11}{30}$$

$$D = \frac{7}{4} \times \frac{3}{5} - \frac{-11}{30}$$

$$D = \frac{21}{20} - \frac{-11}{30}$$

$$D = \frac{21 \times 3}{20 \times 3} - \frac{-11 \times 2}{30 \times 2}$$

$$D = \frac{85}{60}$$

$$D = \frac{17 \times 5}{12 \times 5}$$

$$D = \frac{17}{12}$$

$$E = \frac{11}{3} + \frac{-7}{3} \div \frac{-7}{24}$$

$$E = \frac{11}{3} + \frac{-7}{3} \times \frac{-24}{7}$$

$$E = \frac{11}{3} + \frac{-1 \times \cancel{7}}{1 \times \cancel{3}} \times \frac{-8 \times \cancel{3}}{1 \times \cancel{7}}$$

$$E = \frac{11}{3} + 8$$

$$E = \frac{11}{3} + \frac{8 \times 3}{1 \times 3}$$

$$E = \frac{35}{3}$$

$$F = \frac{-16}{5} + \frac{3}{38} \div \frac{-3}{19}$$

$$F = \frac{-16}{5} + \frac{3}{38} \times \frac{-19}{3}$$

$$F = \frac{-16}{5} + \frac{1 \times \cancel{3}}{2 \times \cancel{19}} \times \frac{-1 \times \cancel{19}}{1 \times \cancel{3}}$$

$$F = \frac{-16}{5} + \frac{-1}{2}$$

$$F = \frac{-16 \times 2}{5 \times 2} + \frac{-1 \times 5}{2 \times 5}$$

$$F = \frac{-37}{10}$$

Corrigé de l'exercice 4

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

$$A = \frac{1}{16} - \frac{3}{10} \times \frac{5}{8}$$

$$A = \frac{1}{16} - \frac{3}{2 \times \cancel{5}} \times \frac{1 \times \cancel{5}}{8}$$

$$A = \frac{1}{16} - \frac{3}{16}$$

$$A = \frac{-2}{16}$$

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

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

$$B = \frac{-14}{13} \div \left(\frac{5}{24} - \frac{1}{8} \right)$$

$$B = \frac{-14}{13} \div \left(\frac{5}{24} - \frac{1 \times 3}{8 \times 3} \right)$$

$$B = \frac{-14}{13} \div \frac{2}{24}$$

$$B = \frac{-14}{13} \div \frac{1 \times 2}{12 \times 2}$$

$$B = \frac{-14}{13} \div \frac{1}{12}$$

$$B = \frac{-14}{13} \times 12$$

$$B = \frac{-168}{13}$$

$$C = \frac{3}{2} - \frac{5}{21} \div \frac{6}{35}$$

$$C = \frac{3}{2} - \frac{5}{21} \times \frac{35}{6}$$

$$C = \frac{3}{2} - \frac{5}{3 \times 7} \times \frac{5 \times 7}{6}$$

$$C = \frac{3}{2} - \frac{25}{18}$$

$$C = \frac{3 \times 9}{2 \times 9} - \frac{25}{18}$$

$$C = \frac{2}{18}$$

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

$$C = \frac{1}{9}$$

$$D = \frac{-3}{5} + \frac{7}{15} \div \frac{-1}{38}$$

$$D = \frac{-3}{5} + \frac{7}{15} \times -38$$

$$D = \frac{-3}{5} + \frac{-266}{15}$$

$$D = \frac{-3 \times 3}{5 \times 3} + \frac{-266}{15}$$

$$D = \frac{-275}{15}$$

$$D = \frac{-55 \times 5}{3 \times 5}$$

$$D = \frac{-55}{3}$$

$$E = \frac{1}{28} - \left(\frac{13}{4} + \frac{-3}{2} \right)$$

$$E = \frac{1}{28} - \left(\frac{13}{4} + \frac{-3 \times 2}{2 \times 2} \right)$$

$$E = \frac{1}{28} - \frac{7}{4}$$

$$E = \frac{1}{28} - \frac{7 \times 7}{4 \times 7}$$

$$E = \frac{-48}{28}$$

$$E = \frac{-12 \times 4}{7 \times 4}$$

$$E = \frac{-12}{7}$$

$$F = \frac{-1}{4} - \frac{16}{3} + \frac{1}{6}$$

$$F = \frac{-1 \times 3}{4 \times 3} - \frac{16 \times 4}{3 \times 4} + \frac{1}{6}$$

$$F = \frac{-67}{12} + \frac{1}{6}$$

$$F = \frac{-67}{12} + \frac{1 \times 2}{6 \times 2}$$

$$F = \frac{-65}{12}$$

Corrigé de l'exercice 5

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

$$A = \frac{-5}{31} \times \left(\frac{-11}{5} + \frac{13}{20} \right)$$

$$A = \frac{-5}{31} \times \left(\frac{-11 \times 4}{5 \times 4} + \frac{13}{20} \right)$$

$$A = \frac{-5}{31} \times \frac{-31}{20}$$

$$A = \frac{-1 \times \cancel{5}}{1 \times \cancel{31}} \times \frac{-1 \times \cancel{31}}{4 \times \cancel{5}}$$

$$A = \frac{1}{4}$$

$$B = \frac{5}{4} \times \frac{-2}{3} \div \frac{-5}{21}$$

$$B = \frac{5}{2 \times \cancel{2}} \times \frac{-1 \times \cancel{2}}{3} \div \frac{-5}{21}$$

$$B = \frac{-5}{6} \div \frac{-5}{21}$$

$$B = \frac{-5}{6} \times \frac{-21}{5}$$

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

$$B = \frac{7}{2}$$

$$C = \frac{13}{5} \div \frac{-13}{37} + \frac{13}{4}$$

$$C = \frac{13}{5} \times \frac{-37}{13} + \frac{13}{4}$$

$$C = \frac{1 \times \cancel{13}}{5} \times \frac{-37}{1 \times \cancel{13}} + \frac{13}{4}$$

$$C = \frac{-37}{5} + \frac{13}{4}$$

$$C = \frac{-37 \times 4}{5 \times 4} + \frac{13 \times 5}{4 \times 5}$$

$$C = \frac{-83}{20}$$

$$D = \frac{-9}{22} + \frac{-5}{13} \div \frac{10}{13}$$

$$D = \frac{-9}{22} + \frac{-5}{13} \times \frac{13}{10}$$

$$D = \frac{-9}{22} + \frac{-1 \times \cancel{5}}{1 \times \cancel{13}} \times \frac{1 \times \cancel{13}}{2 \times \cancel{5}}$$

$$D = \frac{-9}{22} + \frac{-1}{2}$$

$$D = \frac{-9}{22} + \frac{-1 \times 11}{2 \times 11}$$

$$D = \frac{-20}{22}$$

$$D = \frac{-10 \times 2}{11 \times 2}$$

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

$$E = \frac{-11}{39} \times \frac{-13}{5} + \frac{11}{30}$$

$$E = \frac{-11}{3 \times \cancel{13}} \times \frac{-1 \times \cancel{13}}{5} + \frac{11}{30}$$

$$E = \frac{11}{15} + \frac{11}{30}$$

$$E = \frac{11 \times 2}{15 \times 2} + \frac{11}{30}$$

$$E = \frac{33}{30}$$

$$E = \frac{11 \times 3}{10 \times 3}$$

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

$$F = \frac{5}{6} \times \frac{14}{5} - \frac{5}{3}$$

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

$$F = \frac{7}{3} - \frac{5}{3}$$

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

Corrigé de l'exercice 6

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

$$A = \frac{5}{17} \div \left(\frac{3}{32} - \frac{1}{32} \right)$$

$$A = \frac{5}{17} \div \frac{2}{32}$$

$$A = \frac{5}{17} \div \frac{1 \times 2}{16 \times 2}$$

$$A = \frac{5}{17} \div \frac{1}{16}$$

$$A = \frac{5}{17} \times 16$$

$$A = \frac{80}{17}$$

$$B = \frac{11}{20} - \frac{12}{23} \div \frac{-2}{23}$$

$$B = \frac{11}{20} - \frac{12}{23} \times \frac{-23}{2}$$

$$B = \frac{11}{20} - \frac{6 \times \cancel{2}}{1 \times \cancel{23}} \times \frac{-1 \times \cancel{23}}{1 \times \cancel{2}}$$

$$B = \frac{11}{20} - -6$$

$$B = \frac{11}{20} - \frac{-6 \times 20}{1 \times 20}$$

$$B = \frac{131}{20}$$

$$C = \frac{7}{5} \div \left(\frac{-5}{21} + \frac{-1}{21} \right)$$

$$C = \frac{7}{5} \div \frac{-6}{21}$$

$$C = \frac{7}{5} \div \frac{-2 \times 3}{7 \times 3}$$

$$C = \frac{7}{5} \div \frac{-2}{7}$$

$$C = \frac{7}{5} \times \frac{-7}{2}$$

$$C = \frac{-49}{10}$$

$$D = \frac{-11}{2} - \left(\frac{7}{3} + \frac{-13}{21} \right)$$

$$D = \frac{-11}{2} - \left(\frac{7 \times 7}{3 \times 7} + \frac{-13}{21} \right)$$

$$D = \frac{-11}{2} - \frac{36}{21}$$

$$D = \frac{-11}{2} - \frac{12 \times 3}{7 \times 3}$$

$$D = \frac{-11}{2} - \frac{12}{7}$$

$$D = \frac{-11 \times 7}{2 \times 7} - \frac{12 \times 2}{7 \times 2}$$

$$D = \frac{-101}{14}$$

$$E = \frac{-7}{5} + \frac{-3}{20} \times \frac{-7}{3}$$

$$E = \frac{-7}{5} + \frac{-1 \times \cancel{3}}{20} \times \frac{-7}{1 \times \cancel{3}}$$

$$E = \frac{-7}{5} + \frac{7}{20}$$

$$E = \frac{-7 \times 4}{5 \times 4} + \frac{7}{20}$$

$$E = \frac{-21}{20}$$

$$F = \frac{-8}{5} + \frac{-7}{3} \div \frac{-5}{32}$$

$$F = \frac{-8}{5} + \frac{-7}{3} \times \frac{-32}{5}$$

$$F = \frac{-8}{5} + \frac{224}{15}$$

$$F = \frac{-8 \times 3}{5 \times 3} + \frac{224}{15}$$

$$F = \frac{200}{15}$$

$$F = \frac{40 \times 5}{3 \times 5}$$

$$F = \frac{40}{3}$$