

Corrigé de l'exercice 1

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

$$A = \frac{-1}{18} \div \left(\frac{-1}{5} + \frac{2}{5} \right)$$

$$A = \frac{-1}{18} \div \frac{1}{5}$$

$$A = \frac{-1}{18} \times 5$$

$$A = \frac{-5}{18}$$

$$B = \frac{-7}{22} + \frac{15}{32} \div \frac{-3}{16}$$

$$B = \frac{-7}{22} + \frac{15}{32} \times \frac{-16}{3}$$

$$B = \frac{-7}{22} + \frac{5 \times \cancel{3}}{2 \times \cancel{16}} \times \frac{-1 \times \cancel{16}}{1 \times \cancel{3}}$$

$$B = \frac{-7}{22} + \frac{-5}{2}$$

$$B = \frac{-7}{22} + \frac{-5 \times 11}{2 \times 11}$$

$$B = \frac{-62}{22}$$

$$B = \frac{-31 \times 2}{11 \times 2}$$

$$B = \frac{-31}{11}$$

$$C = \frac{-11}{2} \times \frac{6}{11} \div \frac{15}{31}$$

$$C = \frac{-1 \times \cancel{11}}{1 \times \cancel{2}} \times \frac{3 \times \cancel{2}}{1 \times \cancel{11}} \div \frac{15}{31}$$

$$C = -3 \div \frac{15}{31}$$

$$C = -3 \times \frac{31}{15}$$

$$C = -1 \times \cancel{3} \times \frac{31}{5 \times \cancel{3}}$$

$$C = \frac{-31}{5}$$

$$D = \frac{14}{11} + \frac{13}{33} - \frac{-11}{9}$$

$$D = \frac{14 \times 3}{11 \times 3} + \frac{13}{33} - \frac{-11}{9}$$

$$D = \frac{55}{33} - \frac{-11}{9}$$

$$D = \frac{5 \times 11}{3 \times 11} - \frac{-11}{9}$$

$$D = \frac{5}{3} - \frac{-11}{9}$$

$$D = \frac{5 \times 3}{3 \times 3} - \frac{-11}{9}$$

$$D = \frac{26}{9}$$

$$E = \frac{-9}{20} \div \left(\frac{-10}{7} - \frac{-3}{7} \right)$$

$$E = \frac{-9}{20} \div \frac{-7}{7}$$

$$E = \frac{-9}{20} \div \frac{-1 \times 7}{1 \times 7}$$

$$E = \frac{-9}{20} \div -1$$

$$E = \frac{-9}{20} \times -1$$

$$E = \frac{9}{20}$$

$$F = \frac{-9}{13} + \frac{7}{25} \div \frac{-13}{25}$$

$$F = \frac{-9}{13} + \frac{7}{25} \times \frac{-25}{13}$$

$$F = \frac{-9}{13} + \frac{7}{1 \times \cancel{25}} \times \frac{-1 \times \cancel{25}}{13}$$

$$F = \frac{-9}{13} + \frac{-7}{13}$$

$$F = \frac{-16}{13}$$

Corrigé de l'exercice 2

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

$$A = \frac{-7}{4} + \frac{-6}{5} \times \frac{3}{8}$$

$$A = \frac{-7}{4} + \frac{-3 \times \cancel{2}}{5} \times \frac{3}{4 \times \cancel{2}}$$

$$A = \frac{-7}{4} + \frac{-9}{20}$$

$$A = \frac{-7 \times 5}{4 \times 5} + \frac{-9}{20}$$

$$A = \frac{-44}{20}$$

$$A = \frac{-11 \times 4}{5 \times 4}$$

$$A = \frac{-11}{5}$$

$$B = \frac{14}{11} + \frac{1}{9} \div \frac{11}{18}$$

$$B = \frac{14}{11} + \frac{1}{9} \times \frac{18}{11}$$

$$B = \frac{14}{11} + \frac{1}{1 \times \cancel{9}} \times \frac{2 \times \cancel{9}}{11}$$

$$B = \frac{14}{11} + \frac{2}{11}$$

$$B = \frac{16}{11}$$

$$C = \frac{-15}{4} \times \left(\frac{7}{2} - \frac{-5}{6} \right)$$

$$C = \frac{-15}{4} \times \left(\frac{7 \times 3}{2 \times 3} - \frac{-5}{6} \right)$$

$$C = \frac{-15}{4} \times \frac{26}{6}$$

$$C = \frac{-15}{4} \times \frac{13 \times 2}{3 \times 2}$$

$$C = \frac{-15}{4} \times \frac{13}{3}$$

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

$$C = \frac{-65}{4}$$

$$D = \frac{-6}{5} \times \frac{15}{8} \div \frac{3}{8}$$

$$D = \frac{-3 \times \cancel{2}}{1 \times \cancel{5}} \times \frac{3 \times \cancel{5}}{4 \times \cancel{2}} \div \frac{3}{8}$$

$$D = \frac{-9}{4} \div \frac{3}{8}$$

$$D = \frac{-9}{4} \times \frac{8}{3}$$

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

$$D = -6$$

$$E = \frac{3}{2} \div \frac{3}{37} + \frac{9}{26}$$

$$E = \frac{3}{2} \times \frac{37}{3} + \frac{9}{26}$$

$$E = \frac{1 \times \cancel{3}}{2} \times \frac{37}{1 \times \cancel{3}} + \frac{9}{26}$$

$$E = \frac{37}{2} + \frac{9}{26}$$

$$E = \frac{37 \times 13}{2 \times 13} + \frac{9}{26}$$

$$E = \frac{490}{26}$$

$$E = \frac{245 \times 2}{13 \times 2}$$

$$E = \frac{245}{13}$$

$$F = \frac{11}{2} + \frac{1}{36} \div \frac{5}{18}$$

$$F = \frac{11}{2} + \frac{1}{36} \times \frac{18}{5}$$

$$F = \frac{11}{2} + \frac{1}{2 \times \cancel{18}} \times \frac{1 \times \cancel{18}}{5}$$

$$F = \frac{11}{2} + \frac{1}{10}$$

$$F = \frac{11 \times 5}{2 \times 5} + \frac{1}{10}$$

$$F = \frac{56}{10}$$

$$F = \frac{28 \times 2}{5 \times 2}$$

$$F = \frac{28}{5}$$

Corrigé de l'exercice 3

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

$$A = \frac{-3}{5} - \frac{-9}{13} \times \frac{-13}{9}$$

$$A = \frac{-3}{5} - \frac{-1 \times \cancel{9}}{1 \times \cancel{13}} \times \frac{-1 \times \cancel{13}}{1 \times \cancel{9}}$$

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

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

$$A = \frac{-8}{5}$$

$$B = \frac{11}{2} \times \frac{-4}{7} \div \frac{11}{15}$$

$$B = \frac{11}{1 \times \cancel{2}} \times \frac{-2 \times \cancel{2}}{7} \div \frac{11}{15}$$

$$B = \frac{-22}{7} \div \frac{11}{15}$$

$$B = \frac{-22}{7} \times \frac{15}{11}$$

$$B = \frac{-2 \times \cancel{11}}{7} \times \frac{15}{1 \times \cancel{11}}$$

$$B = \frac{-30}{7}$$

$$C = \frac{1}{28} - \frac{5}{4} \div \frac{-1}{27}$$

$$C = \frac{1}{28} - \frac{5}{4} \times -27$$

$$C = \frac{1}{28} - \frac{-135}{4}$$

$$C = \frac{1}{28} - \frac{-135 \times 7}{4 \times 7}$$

$$C = \frac{946}{28}$$

$$C = \frac{473 \times 2}{14 \times 2}$$

$$C = \frac{473}{14}$$

$$D = \frac{13}{2} - \frac{-3}{20} \times \frac{16}{3}$$

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

$$D = \frac{13}{2} - \frac{-4}{5}$$

$$D = \frac{13 \times 5}{2 \times 5} - \frac{-4 \times 2}{5 \times 2}$$

$$D = \frac{73}{10}$$

$$E = \frac{-13}{6} \div \frac{-13}{30} \times \frac{7}{25}$$

$$E = \frac{-13}{6} \times \frac{-30}{13} \times \frac{7}{25}$$

$$E = \frac{-1 \times \cancel{13}}{1 \times \cancel{6}} \times \frac{-5 \times \cancel{6}}{1 \times \cancel{13}} \times \frac{7}{25}$$

$$E = 5 \times \frac{7}{25}$$

$$E = 1 \times \cancel{5} \times \frac{7}{5 \times \cancel{5}}$$

$$E = \frac{7}{5}$$

$$F = \frac{4}{9} \times \frac{-9}{40} \div \frac{-2}{33}$$

$$F = \frac{1 \times \cancel{4}}{1 \times \cancel{9}} \times \frac{-1 \times \cancel{9}}{10 \times \cancel{4}} \div \frac{-2}{33}$$

$$F = \frac{-1}{10} \div \frac{-2}{33}$$

$$F = \frac{-1}{10} \times \frac{-33}{2}$$

$$F = \frac{33}{20}$$

Corrigé de l'exercice 4

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

$$A = \frac{15}{26} \div \left(\frac{-3}{26} - \frac{-9}{26} \right)$$

$$A = \frac{15}{26} \div \frac{6}{26}$$

$$A = \frac{15}{26} \div \frac{3 \times 2}{13 \times 2}$$

$$A = \frac{15}{26} \div \frac{3}{13}$$

$$A = \frac{15}{26} \times \frac{13}{3}$$

$$A = \frac{5 \times \cancel{3}}{2 \times \cancel{13}} \times \frac{1 \times \cancel{13}}{1 \times \cancel{3}}$$

$$A = \frac{5}{2}$$

$$B = \frac{15}{22} \div \left(\frac{1}{28} + \frac{9}{28} \right)$$

$$B = \frac{15}{22} \div \frac{10}{28}$$

$$B = \frac{15}{22} \div \frac{5 \times 2}{14 \times 2}$$

$$B = \frac{15}{22} \div \frac{5}{14}$$

$$B = \frac{15}{22} \times \frac{14}{5}$$

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

$$B = \frac{21}{11}$$

$$C = \frac{3}{10} \div \frac{-1}{33} \times \frac{-11}{9}$$

$$C = \frac{3}{10} \times -33 \times \frac{-11}{9}$$

$$C = \frac{-99}{10} \times \frac{-11}{9}$$

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

$$C = \frac{121}{10}$$

$$D = \frac{16}{35} \div \frac{16}{35} - \frac{6}{7}$$

$$D = \frac{16}{35} \times \frac{35}{16} - \frac{6}{7}$$

$$D = \frac{1 \times \cancel{16}}{1 \times \cancel{35}} \times \frac{1 \times \cancel{35}}{1 \times \cancel{16}} - \frac{6}{7}$$

$$D = 1 - \frac{6}{7}$$

$$D = \frac{1 \times 7}{1 \times 7} - \frac{6}{7}$$

$$D = \frac{1}{7}$$

$$E = \frac{-3}{7} \times \left(\frac{-7}{3} + \frac{1}{2} \right)$$

$$E = \frac{-3}{7} \times \left(\frac{-7 \times 2}{3 \times 2} + \frac{1 \times 3}{2 \times 3} \right)$$

$$E = \frac{-3}{7} \times \frac{-11}{6}$$

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

$$E = \frac{11}{14}$$

$$F = \frac{-13}{3} + \frac{2}{3} \div \frac{10}{31}$$

$$F = \frac{-13}{3} + \frac{2}{3} \times \frac{31}{10}$$

$$F = \frac{-13}{3} + \frac{1 \times \cancel{2}}{3} \times \frac{31}{5 \times \cancel{2}}$$

$$F = \frac{-13}{3} + \frac{31}{15}$$

$$F = \frac{-13 \times 5}{3 \times 5} + \frac{31}{15}$$

$$F = \frac{-34}{15}$$

Corrigé de l'exercice 5

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

$$A = \frac{-10}{3} \times \left(\frac{-4}{5} - \frac{-7}{20} \right)$$

$$A = \frac{-10}{3} \times \left(\frac{-4 \times 4}{5 \times 4} - \frac{-7}{20} \right)$$

$$A = \frac{-10}{3} \times \frac{-9}{20}$$

$$A = \frac{-1 \times \cancel{10}}{1 \times \cancel{3}} \times \frac{-3 \times \cancel{3}}{2 \times \cancel{10}}$$

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

$$B = \frac{-4}{17} - \left(\frac{13}{17} + \frac{4}{17} \right)$$

$$B = \frac{-4}{17} - \frac{17}{17}$$

$$B = \frac{-4}{17} - \frac{1 \times 17}{1 \times 17}$$

$$B = \frac{-4}{17} - 1$$

$$B = \frac{-4}{17} - \frac{1 \times 17}{1 \times 17}$$

$$B = \frac{-21}{17}$$

$$C = \frac{7}{2} \div \left(\frac{-5}{9} + \frac{-1}{6} \right)$$

$$C = \frac{7}{2} \div \left(\frac{-5 \times 2}{9 \times 2} + \frac{-1 \times 3}{6 \times 3} \right)$$

$$C = \frac{7}{2} \div \frac{-13}{18}$$

$$C = \frac{7}{2} \times \frac{-18}{13}$$

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

$$C = \frac{-63}{13}$$

$$D = \frac{-5}{12} \div \frac{-1}{15} \times \frac{8}{15}$$

$$D = \frac{-5}{12} \times -15 \times \frac{8}{15}$$

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

$$D = \frac{25}{4} \times \frac{8}{15}$$

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

$$D = \frac{10}{3}$$

$$E = \frac{6}{5} \times \frac{7}{3} \div \frac{-7}{3}$$

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

$$E = \frac{14}{5} \div \frac{-7}{3}$$

$$E = \frac{14}{5} \times \frac{-3}{7}$$

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

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

$$F = \frac{-9}{22} \times \frac{-11}{6} \div \frac{-3}{4}$$

$$F = \frac{-3 \times \cancel{3}}{2 \times \cancel{11}} \times \frac{-1 \times \cancel{11}}{2 \times \cancel{3}} \div \frac{-3}{4}$$

$$F = \frac{3}{4} \div \frac{-3}{4}$$

$$F = \frac{3}{4} \times \frac{-4}{3}$$

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

$$F = -1$$

Corrigé de l'exercice 6

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

$$A = \frac{-13}{7} - \left(\frac{-3}{28} + \frac{3}{4} \right)$$

$$A = \frac{-13}{7} - \left(\frac{-3}{28} + \frac{3 \times 7}{4 \times 7} \right)$$

$$A = \frac{-13}{7} - \frac{18}{28}$$

$$A = \frac{-13}{7} - \frac{9 \times 2}{14 \times 2}$$

$$A = \frac{-13}{7} - \frac{9}{14}$$

$$A = \frac{-13 \times 2}{7 \times 2} - \frac{9}{14}$$

$$A = \frac{-35}{14}$$

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

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

$$B = \frac{1}{40} - \left(\frac{-1}{10} + \frac{-7}{4} \right)$$

$$B = \frac{1}{40} - \left(\frac{-1 \times 2}{10 \times 2} + \frac{-7 \times 5}{4 \times 5} \right)$$

$$B = \frac{1}{40} - \frac{-37}{20}$$

$$B = \frac{1}{40} - \frac{-37 \times 2}{20 \times 2}$$

$$B = \frac{75}{40}$$

$$B = \frac{15 \times 5}{8 \times 5}$$

$$B = \frac{15}{8}$$

$$C = \frac{-7}{8} + \frac{-10}{3} \div \frac{8}{27}$$

$$C = \frac{-7}{8} + \frac{-10}{3} \times \frac{27}{8}$$

$$C = \frac{-7}{8} + \frac{-5 \times \cancel{2}}{1 \times \cancel{3}} \times \frac{9 \times \cancel{3}}{4 \times \cancel{2}}$$

$$C = \frac{-7}{8} + \frac{-45}{4}$$

$$C = \frac{-7}{8} + \frac{-45 \times 2}{4 \times 2}$$

$$C = \frac{-97}{8}$$

$$D = \frac{-8}{15} + \frac{4}{11} \times \frac{11}{3}$$

$$D = \frac{-8}{15} + \frac{4}{1 \times \cancel{11}} \times \frac{1 \times \cancel{11}}{3}$$

$$D = \frac{-8}{15} + \frac{4}{3}$$

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

$$D = \frac{12}{15}$$

$$D = \frac{4 \times 3}{5 \times 3}$$

$$D = \frac{4}{5}$$

$$E = \frac{9}{28} + \frac{-9}{7} \div \frac{-4}{21}$$

$$E = \frac{9}{28} + \frac{-9}{7} \times \frac{-21}{4}$$

$$E = \frac{9}{28} + \frac{-9}{1 \times \cancel{7}} \times \frac{-3 \times \cancel{7}}{4}$$

$$E = \frac{9}{28} + \frac{27}{4}$$

$$E = \frac{9}{28} + \frac{27 \times 7}{4 \times 7}$$

$$E = \frac{198}{28}$$

$$E = \frac{99 \times 2}{14 \times 2}$$

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

$$F = \frac{-9}{4} + \frac{13}{20} - \frac{-13}{4}$$

$$F = \frac{-9 \times 5}{4 \times 5} + \frac{13}{20} - \frac{-13}{4}$$

$$F = \frac{-32}{20} - \frac{-13}{4}$$

$$F = \frac{-8 \times 4}{5 \times 4} - \frac{-13}{4}$$

$$F = \frac{-8}{5} - \frac{-13}{4}$$

$$F = \frac{-8 \times 4}{5 \times 4} - \frac{-13 \times 5}{4 \times 5}$$

$$F = \frac{33}{20}$$