

Exercice 1

Compléter :

$$\begin{aligned} \blacktriangleright 1. \quad \frac{20}{10} &= \frac{10}{\dots} \\ \blacktriangleright 2. \quad \frac{72}{\dots} &= \frac{9}{10} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 3. \quad \frac{\dots}{4} &= \frac{48}{24} \\ \blacktriangleright 4. \quad \frac{\dots}{\dots} &= \frac{3}{7} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 5. \quad \frac{7}{10} &= \frac{\dots}{30} \\ \blacktriangleright 6. \quad \frac{24}{\dots} &= \frac{3}{6} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 7. \quad \frac{9}{\dots} &= \frac{45}{10} \\ \blacktriangleright 8. \quad \frac{\dots}{54} &= \frac{10}{9} \end{aligned}$$

Exercice 2

Compléter :

$$\begin{aligned} \blacktriangleright 1. \quad \frac{\dots}{9} &= \frac{21}{63} \\ \blacktriangleright 2. \quad \frac{8}{2} &= \frac{\dots}{8} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 3. \quad \frac{9}{10} &= \frac{18}{\dots} \\ \blacktriangleright 4. \quad \frac{12}{\dots} &= \frac{2}{4} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 5. \quad \frac{6}{4} &= \frac{12}{\dots} \\ \blacktriangleright 6. \quad \frac{\dots}{2} &= \frac{63}{14} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 7. \quad \frac{\dots}{6} &= \frac{18}{12} \\ \blacktriangleright 8. \quad \frac{42}{\dots} &= \frac{6}{9} \end{aligned}$$

Exercice 3

Compléter :

$$\begin{aligned} \blacktriangleright 1. \quad \frac{\dots}{36} &= \frac{8}{4} \\ \blacktriangleright 2. \quad \frac{8}{3} &= \frac{32}{\dots} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 3. \quad \frac{6}{48} &= \frac{1}{\dots} \\ \blacktriangleright 4. \quad \frac{8}{9} &= \frac{80}{\dots} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 5. \quad \frac{9}{5} &= \frac{54}{\dots} \\ \blacktriangleright 6. \quad \frac{36}{42} &= \frac{\dots}{7} \end{aligned}$$

$$\begin{aligned} \blacktriangleright 7. \quad \frac{1}{3} &= \frac{\dots}{21} \\ \blacktriangleright 8. \quad \frac{12}{\dots} &= \frac{3}{4} \end{aligned}$$

Exercice 4

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

$$\begin{aligned} A &= \frac{7}{9} + 8 \\ B &= \frac{7}{3} - \frac{13}{12} \end{aligned}$$

$$\begin{aligned} C &= \frac{7}{3} - \frac{12}{5} \\ D &= \frac{13}{5} + \frac{8}{3} \end{aligned}$$

$$\begin{aligned} E &= \frac{-8}{5} + \frac{13}{2} \\ F &= \frac{4}{9} - \frac{-1}{2} \end{aligned}$$

$$\begin{aligned} G &= \frac{-1}{6} + \frac{4}{15} \\ H &= \frac{-1}{15} - \frac{-5}{12} \end{aligned}$$

Exercice 5

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

$$\begin{aligned} A &= 8 - \frac{5}{7} \\ B &= 5 + \frac{10}{7} \end{aligned}$$

$$\begin{aligned} C &= \frac{13}{4} - \frac{11}{5} \\ D &= \frac{5}{4} + \frac{11}{3} \end{aligned}$$

$$\begin{aligned} E &= \frac{10}{3} + \frac{-15}{2} \\ F &= \frac{-13}{3} - \frac{-7}{4} \end{aligned}$$

$$\begin{aligned} G &= \frac{-9}{10} + \frac{4}{35} \\ H &= \frac{13}{6} - \frac{-8}{4} \end{aligned}$$

Exercice 6

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

$$\begin{aligned} A &= \frac{7}{5} - \frac{8}{15} \\ B &= \frac{1}{18} + \frac{14}{3} \end{aligned}$$

$$\begin{aligned} C &= \frac{5}{2} + \frac{4}{5} \\ D &= \frac{4}{3} - \frac{8}{5} \end{aligned}$$

$$\begin{aligned} E &= \frac{-11}{3} - \frac{7}{2} \\ F &= \frac{-11}{5} + \frac{-15}{4} \end{aligned}$$

$$\begin{aligned} G &= \frac{1}{10} - \frac{-11}{15} \\ H &= \frac{11}{14} + \frac{-3}{35} \end{aligned}$$

Exercice 7

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

$$\begin{array}{l} A = \frac{1}{2} \div \frac{5}{7} \\ B = \frac{1}{2} \times \frac{7}{8} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-9}{-4} \times \frac{3}{-5} \\ D = \frac{4}{3} \div \frac{-1}{-10} \end{array} \right| \quad \begin{array}{l} E = \frac{100}{81} \div \frac{50}{81} \\ F = \frac{80}{21} \times \frac{49}{20} \end{array} \quad \left| \quad \begin{array}{l} G = \frac{-24}{27} \div \frac{12}{-27} \\ H = \frac{-40}{-24} \times \frac{-80}{-10} \end{array}$$

Exercice 8

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

$$\begin{array}{l} A = \frac{7}{5} \times \frac{7}{3} \\ B = \frac{10}{3} \div \frac{3}{4} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-5}{4} \times \frac{-1}{-4} \\ D = \frac{5}{2} \div \frac{2}{5} \end{array} \right| \quad \begin{array}{l} E = \frac{100}{49} \div \frac{50}{63} \\ F = \frac{21}{10} \times \frac{20}{21} \end{array} \quad \left| \quad \begin{array}{l} G = \frac{-64}{45} \times \frac{27}{32} \\ H = \frac{-10}{63} \div \frac{-10}{49} \end{array}$$

Exercice 9

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

$$\begin{array}{l} A = \frac{3}{4} \div \frac{1}{5} \\ B = \frac{1}{8} \times \frac{1}{2} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-7}{2} \times \frac{-7}{-2} \\ D = \frac{-7}{9} \div \frac{-1}{8} \end{array} \right| \quad \begin{array}{l} E = \frac{35}{36} \times \frac{16}{35} \\ F = \frac{16}{63} \div \frac{16}{21} \end{array} \quad \left| \quad \begin{array}{l} G = \frac{-14}{15} \times \frac{-9}{-14} \\ H = \frac{-72}{32} \div \frac{-45}{-72} \end{array}$$

Exercice 10

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

$$\begin{array}{l} A = \frac{5}{2} \div \frac{6}{5} \\ B = \frac{7}{4} \times \frac{5}{4} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-5}{9} \div \frac{2}{5} \\ D = \frac{-5}{-2} \times \frac{1}{6} \end{array} \right| \quad \begin{array}{l} E = \frac{70}{9} \div \frac{20}{9} \\ F = \frac{10}{27} \times \frac{15}{4} \end{array} \quad \left| \quad \begin{array}{l} G = \frac{-50}{21} \times \frac{-7}{-20} \\ H = \frac{25}{8} \div \frac{25}{-20} \end{array}$$

Exercice 11

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

$$\begin{array}{l} A = \frac{-1}{15} \times \frac{-5}{4} + \frac{8}{3} \\ B = \frac{11}{6} + \frac{14}{3} \times \frac{-7}{6} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-13}{15} - \frac{11}{30} \div \frac{11}{16} \\ D = \frac{-1}{2} - \frac{6}{5} \div \frac{-1}{8} \end{array} \right| \quad \begin{array}{l} E = \frac{14}{17} \times \frac{15}{7} \div \frac{-2}{39} \\ F = \frac{5}{19} \times \left(\frac{13}{2} - \frac{7}{2} \right) \end{array}$$

Exercice 12

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

$$\begin{array}{l} A = \frac{-11}{39} \div \frac{-1}{39} \times \frac{-4}{33} \\ B = \frac{-5}{9} \div \frac{-16}{27} - \frac{3}{2} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{-15}{8} \div \frac{1}{12} \times \frac{2}{7} \\ D = \frac{-15}{4} \times \left(\frac{-7}{3} + \frac{-5}{12} \right) \end{array} \right| \quad \begin{array}{l} E = \frac{14}{3} \times \frac{-9}{7} - \frac{1}{4} \\ F = \frac{-13}{7} - \left(\frac{-5}{2} + \frac{-11}{7} \right) \end{array}$$

Exercice 13

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

$$\begin{array}{l} A = \frac{15}{2} \times \frac{-4}{3} \div \frac{-5}{7} \\ B = \frac{-3}{32} \div \frac{1}{30} - \frac{-5}{4} \end{array} \quad \left| \quad \begin{array}{l} C = \frac{7}{4} \times \left(\frac{15}{2} - \frac{-9}{2} \right) \\ D = \frac{8}{13} \div \frac{10}{13} \times \frac{15}{28} \end{array} \right| \quad \begin{array}{l} E = \frac{8}{3} \div \frac{7}{18} \times \frac{14}{39} \\ F = \frac{9}{2} \div \frac{1}{11} - \frac{-7}{22} \end{array}$$

Exercice 14

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{8}{9} \div \left(\frac{-6}{5} - \frac{-3}{2} \right) \quad \left| \quad B = \frac{80}{7} - \frac{-8}{7} \times \frac{-7}{5} \quad \left| \quad C = \frac{\frac{-1}{4} + 8}{\frac{-1}{2} - 6} \right.$$

Exercice 15

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{9}{7} + \frac{-5}{14} \times 2 \quad \left| \quad B = \frac{-6}{5} \times \left(\frac{13}{9} + \frac{11}{10} \right) \quad \left| \quad C = \frac{\frac{-1}{5} - 1}{\frac{-1}{2} + 5} \right.$$

Exercice 16

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{-4}{3} \div \left(\frac{5}{11} - \frac{3}{2} \right) \quad \left| \quad B = \frac{\frac{-10}{9} + 9}{\frac{8}{9} + 9} \quad \left| \quad C = \frac{35}{9} + \frac{7}{18} \times \frac{-9}{7} \right.$$

Exercice 17

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{\frac{-8}{9} - 3}{\frac{-8}{9} + 9} \quad \left| \quad B = \frac{-1}{2} \times \left(\frac{-9}{5} - \frac{-5}{3} \right) \quad \left| \quad C = \frac{-91}{3} - \frac{-26}{3} \times \frac{6}{65} \right.$$

Corrigé de l'exercice 1

Compléter :

$$\blacktriangleright 1. \frac{20}{10} = \frac{10_{(\times 2)}}{5_{(\times 2)}}$$

$$\blacktriangleright 2. \frac{72}{80} = \frac{9_{(\times 8)}}{10_{(\times 8)}}$$

$$\blacktriangleright 3. \frac{8_{(\times 6)}}{4_{(\times 6)}} = \frac{48}{24}$$

$$\blacktriangleright 4. \frac{9}{21} = \frac{3_{(\times 3)}}{7_{(\times 3)}}$$

$$\blacktriangleright 5. \frac{7_{(\times 3)}}{10_{(\times 3)}} = \frac{21}{30}$$

$$\blacktriangleright 6. \frac{24}{48} = \frac{3_{(\times 8)}}{6_{(\times 8)}}$$

$$\blacktriangleright 7. \frac{9_{(\times 5)}}{2_{(\times 5)}} = \frac{45}{10}$$

$$\blacktriangleright 8. \frac{60}{54} = \frac{10_{(\times 6)}}{9_{(\times 6)}}$$

Corrigé de l'exercice 2

Compléter :

$$\blacktriangleright 1. \frac{3_{(\times 7)}}{9_{(\times 7)}} = \frac{21}{63}$$

$$\blacktriangleright 2. \frac{8_{(\times 4)}}{2_{(\times 4)}} = \frac{32}{8}$$

$$\blacktriangleright 3. \frac{9_{(\times 2)}}{10_{(\times 2)}} = \frac{18}{20}$$

$$\blacktriangleright 4. \frac{12}{24} = \frac{2_{(\times 6)}}{4_{(\times 6)}}$$

$$\blacktriangleright 5. \frac{6_{(\times 2)}}{4_{(\times 2)}} = \frac{12}{8}$$

$$\blacktriangleright 6. \frac{9_{(\times 7)}}{2_{(\times 7)}} = \frac{63}{14}$$

$$\blacktriangleright 7. \frac{9_{(\times 2)}}{6_{(\times 2)}} = \frac{18}{12}$$

$$\blacktriangleright 8. \frac{42}{63} = \frac{6_{(\times 7)}}{9_{(\times 7)}}$$

Corrigé de l'exercice 3

Compléter :

$$\blacktriangleright 1. \frac{72}{36} = \frac{8_{(\times 9)}}{4_{(\times 9)}}$$

$$\blacktriangleright 2. \frac{8_{(\times 4)}}{3_{(\times 4)}} = \frac{32}{12}$$

$$\blacktriangleright 3. \frac{6}{48} = \frac{1_{(\times 6)}}{8_{(\times 6)}}$$

$$\blacktriangleright 4. \frac{8_{(\times 10)}}{9_{(\times 10)}} = \frac{80}{90}$$

$$\blacktriangleright 5. \frac{9_{(\times 6)}}{5_{(\times 6)}} = \frac{54}{30}$$

$$\blacktriangleright 6. \frac{36}{42} = \frac{6_{(\times 6)}}{7_{(\times 6)}}$$

$$\blacktriangleright 7. \frac{1_{(\times 7)}}{3_{(\times 7)}} = \frac{7}{21}$$

$$\blacktriangleright 8. \frac{12}{16} = \frac{3_{(\times 4)}}{4_{(\times 4)}}$$

Corrigé de l'exercice 4

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

$$A = \frac{7}{9} + 8$$

$$A = \frac{7}{9} + \frac{8 \times 9}{1 \times 9}$$

$$A = \frac{79}{9}$$

$$B = \frac{7}{3} - \frac{13}{12}$$

$$B = \frac{7 \times 4}{3 \times 4} - \frac{13}{12}$$

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

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

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

$$C = \frac{7}{3} - \frac{12}{5}$$

$$C = \frac{7 \times 5}{3 \times 5} - \frac{12 \times 3}{5 \times 3}$$

$$C = \frac{-1}{15}$$

$$D = \frac{13}{5} + \frac{8}{3}$$

$$D = \frac{13 \times 3}{5 \times 3} + \frac{8 \times 5}{3 \times 5}$$

$$D = \frac{79}{15}$$

$$E = \frac{-8}{5} + \frac{13}{2}$$

$$E = \frac{-8 \times 2}{5 \times 2} + \frac{13 \times 5}{2 \times 5}$$

$$E = \frac{49}{10}$$

$$F = \frac{4}{9} - \frac{-1}{2}$$

$$F = \frac{4 \times 2}{9 \times 2} - \frac{-1 \times 9}{2 \times 9}$$

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

$$G = \frac{-1}{6} + \frac{4}{15}$$

$$G = \frac{-1 \times 5}{6 \times 5} + \frac{4 \times 2}{15 \times 2}$$

$$G = \frac{3}{30}$$

$$G = \frac{1 \times 3}{10 \times 3}$$

$$G = \frac{1}{10}$$

$$H = \frac{-1}{15} - \frac{-5}{12}$$

$$H = \frac{-1 \times 4}{15 \times 4} - \frac{-5 \times 5}{12 \times 5}$$

$$H = \frac{21}{60}$$

$$H = \frac{7 \times 3}{20 \times 3}$$

$$H = \frac{7}{20}$$

Corrigé de l'exercice 5

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

$$A = 8 - \frac{5}{7}$$

$$A = \frac{8 \times 7}{1 \times 7} - \frac{5}{7}$$

$$A = \frac{51}{7}$$

$$B = 5 + \frac{10}{7}$$

$$B = \frac{5 \times 7}{1 \times 7} + \frac{10}{7}$$

$$B = \frac{45}{7}$$

$$C = \frac{13}{4} - \frac{11}{5}$$

$$C = \frac{13 \times 5}{4 \times 5} - \frac{11 \times 4}{5 \times 4}$$

$$C = \frac{21}{20}$$

$$D = \frac{5}{4} + \frac{11}{3}$$

$$D = \frac{5 \times 3}{4 \times 3} + \frac{11 \times 4}{3 \times 4}$$

$$D = \frac{59}{12}$$

$$E = \frac{10}{3} + \frac{-15}{2}$$

$$E = \frac{10 \times 2}{3 \times 2} + \frac{-15 \times 3}{2 \times 3}$$

$$E = \frac{-25}{6}$$

$$F = \frac{-13}{3} - \frac{-7}{4}$$

$$F = \frac{-13 \times 4}{3 \times 4} - \frac{-7 \times 3}{4 \times 3}$$

$$F = \frac{-31}{12}$$

$$G = \frac{-9}{10} + \frac{4}{35}$$

$$G = \frac{-9 \times 7}{10 \times 7} + \frac{4 \times 2}{35 \times 2}$$

$$G = \frac{-55}{70}$$

$$G = \frac{-11 \times 5}{14 \times 5}$$

$$G = \frac{-11}{14}$$

$$H = \frac{13}{6} - \frac{-7}{4}$$

$$H = \frac{13 \times 2}{6 \times 2} - \frac{-7 \times 3}{4 \times 3}$$

$$H = \frac{47}{12}$$

Corrigé de l'exercice 6

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

$$A = \frac{7}{5} - \frac{8}{15}$$

$$A = \frac{7 \times 3}{5 \times 3} - \frac{8}{15}$$

$$A = \frac{13}{15}$$

$$B = \frac{1}{18} + \frac{14}{3}$$

$$B = \frac{1}{18} + \frac{14 \times 6}{3 \times 6}$$

$$B = \frac{85}{18}$$

$$C = \frac{5}{2} + \frac{4}{5}$$

$$C = \frac{5 \times 5}{2 \times 5} + \frac{4 \times 2}{5 \times 2}$$

$$C = \frac{33}{10}$$

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

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

$$D = \frac{-4}{15}$$

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

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

$$E = \frac{-43}{6}$$

$$F = \frac{-11}{5} + \frac{-15}{4}$$

$$F = \frac{-11 \times 4}{5 \times 4} + \frac{-15 \times 5}{4 \times 5}$$

$$F = \frac{-119}{20}$$

$$G = \frac{1}{10} - \frac{-11}{15}$$

$$G = \frac{1 \times 3}{10 \times 3} - \frac{-11 \times 2}{15 \times 2}$$

$$G = \frac{25}{30}$$

$$G = \frac{5 \times 5}{6 \times 5}$$

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

$$H = \frac{11}{14} + \frac{-3}{35}$$

$$H = \frac{11 \times 5}{14 \times 5} + \frac{-3 \times 2}{35 \times 2}$$

$$H = \frac{49}{70}$$

$$H = \frac{7 \times 7}{10 \times 7}$$

$$H = \frac{7}{10}$$

Corrigé de l'exercice 7

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

$$A = \frac{1}{2} \div \frac{5}{7}$$

$$A = \frac{1}{2} \times \frac{7}{5}$$

$$A = \frac{7}{10}$$

$$B = \frac{1}{2} \times \frac{7}{8}$$

$$B = \frac{7}{16}$$

$$C = \frac{-9}{-4} \times \frac{3}{-5}$$

$$C = \frac{-27}{20}$$

$$D = \frac{4}{3} \div \frac{-1}{-10}$$

$$D = \frac{4}{3} \times 10$$

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

$$E = \frac{100}{81} \div \frac{50}{81}$$

$$E = \frac{100}{81} \times \frac{81}{50}$$

$$E = \frac{2 \times \cancel{50}}{1 \times \cancel{81}} \times \frac{1 \times \cancel{81}}{1 \times \cancel{50}}$$

$$E = 2$$

$$F = \frac{80}{21} \times \frac{49}{20}$$

$$F = \frac{4 \times \cancel{20}}{3 \times \cancel{7}} \times \frac{7 \times \cancel{7}}{1 \times \cancel{20}}$$

$$F = \frac{28}{3}$$

$$G = \frac{-24}{27} \div \frac{12}{-27}$$

$$G = \frac{-24}{27} \times \frac{-27}{12}$$

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

$$G = \frac{-8}{9} \times \frac{-9}{4}$$

$$G = \frac{-2 \times \cancel{4}}{1 \times \cancel{9}} \times \frac{-1 \times \cancel{9}}{1 \times \cancel{4}}$$

$$G = 2$$

$$H = \frac{-40}{-24} \times \frac{-80}{-10}$$

$$H = \frac{-\cancel{5} \times \cancel{3}}{-3 \times \cancel{3}} \times \frac{-\cancel{8} \times \cancel{10}}{-1 \times \cancel{10}}$$

$$H = \frac{5}{3} \times 8$$

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

Corrigé de l'exercice 8

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

$$A = \frac{7}{5} \times \frac{7}{3}$$

$$A = \frac{49}{15}$$

$$B = \frac{10}{3} \div \frac{3}{4}$$

$$B = \frac{10}{3} \times \frac{4}{3}$$

$$B = \frac{40}{9}$$

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

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

$$D = \frac{5}{2} \div \frac{2}{5}$$

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

$$D = \frac{25}{4}$$

$$E = \frac{100}{49} \div \frac{50}{63}$$

$$E = \frac{100}{49} \times \frac{63}{50}$$

$$E = \frac{2 \times \cancel{50}}{7 \times \cancel{7}} \times \frac{9 \times \cancel{7}}{1 \times \cancel{50}}$$

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

$$F = \frac{21}{10} \times \frac{20}{21}$$

$$F = \frac{1 \times \cancel{21}}{1 \times \cancel{10}} \times \frac{2 \times \cancel{10}}{1 \times \cancel{21}}$$

$$F = 2$$

$$G = \frac{-64}{45} \times \frac{27}{32}$$

$$G = \frac{-2 \times \cancel{32}}{5 \times \cancel{9}} \times \frac{3 \times \cancel{9}}{1 \times \cancel{32}}$$

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

$$H = \frac{-10}{63} \div \frac{-10}{49}$$

$$H = \frac{-10}{63} \times \frac{-49}{10}$$

$$H = \frac{-1 \times \cancel{10}}{9 \times \cancel{7}} \times \frac{-7 \times \cancel{7}}{1 \times \cancel{10}}$$

$$H = \frac{7}{9}$$

Corrigé de l'exercice 9

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

$$A = \frac{3}{4} \div \frac{1}{5}$$

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

$$A = \frac{15}{4}$$

$$B = \frac{1}{8} \times \frac{1}{2}$$

$$B = \frac{1}{16}$$

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

$$C = \frac{-49}{4}$$

$$D = \frac{-7}{9} \div \frac{-1}{8}$$

$$D = \frac{-7}{9} \times -8$$

$$D = \frac{56}{9}$$

$$E = \frac{35}{36} \times \frac{16}{35}$$

$$E = \frac{1 \times \cancel{35}}{9 \times \cancel{4}} \times \frac{4 \times \cancel{4}}{1 \times \cancel{35}}$$

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

$$F = \frac{16}{63} \div \frac{16}{21}$$

$$F = \frac{16}{63} \times \frac{21}{16}$$

$$F = \frac{1 \times \cancel{16}}{3 \times \cancel{21}} \times \frac{1 \times \cancel{21}}{1 \times \cancel{16}}$$

$$F = \frac{1}{3}$$

$$G = \frac{-14}{15} \times \frac{-9}{-14}$$

$$G = \frac{-1 \times \cancel{14}}{5 \times \cancel{3}} \times \frac{3 \times \cancel{3}}{1 \times \cancel{14}}$$

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

$$H = \frac{-72}{32} \div \frac{-45}{-72}$$

$$H = \frac{-72}{32} \times \frac{72}{45}$$

$$H = \frac{-\cancel{9} \times \cancel{3}}{4 \times \cancel{3}} \times \frac{8 \times \cancel{9}}{5 \times \cancel{9}}$$

$$H = \frac{-9}{4} \times \frac{8}{5}$$

$$H = \frac{-9}{1 \times \cancel{4}} \times \frac{2 \times \cancel{4}}{5}$$

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

Corrigé de l'exercice 10

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

$$A = \frac{5}{2} \div \frac{6}{5}$$

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

$$A = \frac{25}{12}$$

$$B = \frac{7}{4} \times \frac{5}{4}$$

$$B = \frac{35}{16}$$

$$C = \frac{-5}{9} \div \frac{2}{5}$$

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

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

$$D = \frac{-5}{-2} \times \frac{1}{6}$$

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

$$E = \frac{70}{9} \div \frac{20}{9}$$

$$E = \frac{70}{9} \times \frac{9}{20}$$

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

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

$$F = \frac{10}{27} \times \frac{15}{4}$$

$$F = \frac{5 \times \cancel{2}}{9 \times \cancel{3}} \times \frac{5 \times \cancel{3}}{2 \times \cancel{2}}$$

$$F = \frac{25}{18}$$

$$G = \frac{-50}{21} \times \frac{-7}{-20}$$

$$G = \frac{-5 \times \cancel{10}}{3 \times \cancel{7}} \times \frac{1 \times \cancel{7}}{2 \times \cancel{10}}$$

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

$$H = \frac{25}{8} \div \frac{25}{-20}$$

$$H = \frac{25}{8} \times \frac{-20}{25}$$

$$H = \frac{25}{8} \times \frac{-4 \times \cancel{5}}{5 \times \cancel{5}}$$

$$H = \frac{25}{8} \times \frac{-4}{5}$$

$$H = \frac{5 \times \cancel{5}}{2 \times \cancel{4}} \times \frac{-1 \times \cancel{4}}{1 \times \cancel{5}}$$

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

Corrigé de l'exercice 11

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

$$A = \frac{-1}{15} \times \frac{-5}{4} + \frac{8}{3}$$

$$A = \frac{-1}{3 \times \cancel{5}} \times \frac{-1 \times \cancel{5}}{4} + \frac{8}{3}$$

$$A = \frac{1}{12} + \frac{8}{3}$$

$$A = \frac{1}{12} + \frac{8 \times 4}{3 \times 4}$$

$$A = \frac{33}{12}$$

$$A = \frac{11 \times 3}{4 \times 3}$$

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

$$B = \frac{11}{6} + \frac{14}{3} \times \frac{-7}{6}$$

$$B = \frac{11}{6} + \frac{7 \times \cancel{2}}{3} \times \frac{-7}{3 \times \cancel{2}}$$

$$B = \frac{11}{6} + \frac{-49}{9}$$

$$B = \frac{11 \times 3}{6 \times 3} + \frac{-49 \times 2}{9 \times 2}$$

$$B = \frac{-65}{18}$$

$$C = \frac{-13}{15} - \frac{11}{30} \div \frac{11}{16}$$

$$C = \frac{-13}{15} - \frac{11}{30} \times \frac{16}{11}$$

$$C = \frac{-13}{15} - \frac{1 \times \cancel{11}}{15 \times \cancel{2}} \times \frac{8 \times \cancel{2}}{1 \times \cancel{11}}$$

$$C = \frac{-13}{15} - \frac{8}{15}$$

$$C = \frac{-21}{15}$$

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

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

$$D = \frac{-1}{2} - \frac{6}{5} \div \frac{-1}{8}$$

$$D = \frac{-1}{2} - \frac{6}{5} \times -8$$

$$D = \frac{-1}{2} - \frac{-48}{5}$$

$$D = \frac{-1 \times 5}{2 \times 5} - \frac{-48 \times 2}{5 \times 2}$$

$$D = \frac{91}{10}$$

$$E = \frac{14}{17} \times \frac{15}{7} \div \frac{-2}{39}$$

$$E = \frac{2 \times \cancel{7}}{17} \times \frac{15}{1 \times \cancel{7}} \div \frac{-2}{39}$$

$$E = \frac{30}{17} \div \frac{-2}{39}$$

$$E = \frac{30}{17} \times \frac{-39}{2}$$

$$E = \frac{15 \times \cancel{2}}{17} \times \frac{-39}{1 \times \cancel{2}}$$

$$E = \frac{-585}{17}$$

$$F = \frac{5}{19} \times \left(\frac{13}{2} - \frac{7}{2} \right)$$

$$F = \frac{5}{19} \times \frac{6}{2}$$

$$F = \frac{5}{19} \times \frac{3 \times 2}{1 \times 2}$$

$$F = \frac{5}{19} \times 3$$

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

Corrigé de l'exercice 12

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

$$A = \frac{-11}{39} \div \frac{-1}{39} \times \frac{-4}{33}$$

$$A = \frac{-11}{39} \times -39 \times \frac{-4}{33}$$

$$A = \frac{-11}{1 \times \cancel{39}} \times -1 \times \cancel{39} \times \frac{-4}{33}$$

$$A = 11 \times \frac{-4}{33}$$

$$A = 1 \times \cancel{11} \times \frac{-4}{3 \times \cancel{11}}$$

$$A = \frac{-4}{3}$$

$$B = \frac{-5}{9} \div \frac{-16}{27} - \frac{3}{2}$$

$$B = \frac{-5}{9} \times \frac{-27}{16} - \frac{3}{2}$$

$$B = \frac{-5}{1 \times \cancel{9}} \times \frac{-3 \times \cancel{9}}{16} - \frac{3}{2}$$

$$B = \frac{15}{16} - \frac{3}{2}$$

$$B = \frac{15}{16} - \frac{3 \times 8}{2 \times 8}$$

$$B = \frac{-9}{16}$$

$$C = \frac{-15}{8} \div \frac{1}{12} \times \frac{2}{7}$$

$$C = \frac{-15}{8} \times 12 \times \frac{2}{7}$$

$$C = \frac{-15}{2 \times \cancel{4}} \times 3 \times \cancel{4} \times \frac{2}{7}$$

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

$$C = \frac{-45}{1 \times \cancel{2}} \times \frac{1 \times \cancel{2}}{7}$$

$$C = \frac{-45}{7}$$

$$D = \frac{-15}{4} \times \left(\frac{-7}{3} + \frac{-5}{12} \right)$$

$$D = \frac{-15}{4} \times \left(\frac{-7 \times 4}{3 \times 4} + \frac{-5}{12} \right)$$

$$D = \frac{-15}{4} \times \frac{-33}{12}$$

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

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

$$D = \frac{165}{16}$$

$$E = \frac{14}{3} \times \frac{-9}{7} - \frac{1}{4}$$

$$E = \frac{2 \times \cancel{7}}{1 \times \cancel{3}} \times \frac{-3 \times \cancel{3}}{1 \times \cancel{7}} - \frac{1}{4}$$

$$E = -6 - \frac{1}{4}$$

$$E = \frac{-6 \times 4}{1 \times 4} - \frac{1}{4}$$

$$E = \frac{-25}{4}$$

$$F = \frac{-13}{7} - \left(\frac{-5}{2} + \frac{-11}{7} \right)$$

$$F = \frac{-13}{7} - \left(\frac{-5 \times 7}{2 \times 7} + \frac{-11 \times 2}{7 \times 2} \right)$$

$$F = \frac{-13}{7} - \frac{-57}{14}$$

$$F = \frac{-13 \times 2}{7 \times 2} - \frac{-57}{14}$$

$$F = \frac{31}{14}$$

Corrigé de l'exercice 13

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

$$A = \frac{15}{2} \times \frac{-4}{3} \div \frac{-5}{7}$$

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

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

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

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

$$A = 14$$

$$B = \frac{-3}{32} \div \frac{1}{30} - \frac{-5}{4}$$

$$B = \frac{-3}{32} \times 30 - \frac{-5}{4}$$

$$B = \frac{-3}{16 \times \cancel{2}} \times 15 \times \cancel{2} - \frac{-5}{4}$$

$$B = \frac{-45}{16} - \frac{-5}{4}$$

$$B = \frac{-45}{16} - \frac{-5 \times 4}{4 \times 4}$$

$$B = \frac{-25}{16}$$

$$C = \frac{7}{4} \times \left(\frac{15}{2} - \frac{-9}{2} \right)$$

$$C = \frac{7}{4} \times \frac{24}{2}$$

$$C = \frac{7}{4} \times \frac{12 \times 2}{1 \times 2}$$

$$C = \frac{7}{4} \times 12$$

$$C = \frac{7}{1 \times \cancel{4}} \times 3 \times \cancel{4}$$

$$C = 21$$

$$D = \frac{8}{13} \div \frac{10}{13} \times \frac{15}{28}$$

$$D = \frac{8}{13} \times \frac{13}{10} \times \frac{15}{28}$$

$$D = \frac{4 \times \cancel{2}}{1 \times \cancel{13}} \times \frac{1 \times \cancel{13}}{5 \times \cancel{2}} \times \frac{15}{28}$$

$$D = \frac{4}{5} \times \frac{15}{28}$$

$$D = \frac{1 \times \cancel{4}}{1 \times \cancel{5}} \times \frac{3 \times \cancel{5}}{7 \times \cancel{4}}$$

$$D = \frac{3}{7}$$

$$E = \frac{8}{3} \div \frac{7}{18} \times \frac{14}{39}$$

$$E = \frac{8}{3} \times \frac{18}{7} \times \frac{14}{39}$$

$$E = \frac{8}{1 \times 3} \times \frac{6 \times 3}{7} \times \frac{14}{39}$$

$$E = \frac{48}{7} \times \frac{14}{39}$$

$$E = \frac{16 \times 3}{1 \times 7} \times \frac{2 \times 7}{13 \times 3}$$

$$E = \frac{32}{13}$$

$$F = \frac{9}{2} \div \frac{1}{11} - \frac{-7}{22}$$

$$F = \frac{9}{2} \times 11 - \frac{-7}{22}$$

$$F = \frac{99}{2} - \frac{-7}{22}$$

$$F = \frac{99 \times 11}{2 \times 11} - \frac{-7}{22}$$

$$F = \frac{1096}{22}$$

$$F = \frac{548 \times 2}{11 \times 2}$$

$$F = \frac{548}{11}$$

Corrigé de l'exercice 14

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{8}{9} \div \left(\frac{-6}{5} - \frac{-3}{2} \right)$$

$$A = \frac{8}{9} \div \left(\frac{-6 \times 2}{5 \times 2} - \frac{-3 \times 5}{2 \times 5} \right)$$

$$A = \frac{8}{9} \div \left(\frac{-12}{10} - \frac{-15}{10} \right)$$

$$A = \frac{8}{9} \div \frac{3}{10}$$

$$A = \frac{8}{9} \times \frac{10}{3}$$

$$A =$$

$$A = \frac{80}{27}$$

$$B = \frac{80}{7} - \frac{-8}{7} \times \frac{-7}{5}$$

$$B = \frac{80}{7} - \frac{-8}{-1 \times 7} \times \frac{1 \times 7}{5}$$

$$B = \frac{80}{7} - \frac{8}{5}$$

$$B = \frac{80 \times 5}{7 \times 5} - \frac{8 \times 7}{5 \times 7}$$

$$B = \frac{400}{35} - \frac{56}{35}$$

$$B = \frac{344}{35}$$

$$C = \frac{-1}{4} + 8$$

$$C = \frac{-1}{2} - 6$$

$$C = \frac{-1}{4} + \frac{8 \times 4}{1 \times 4}$$

$$C = \frac{-1}{2} - \frac{6 \times 2}{1 \times 2}$$

$$C = \frac{-1}{2} + \frac{32}{2}$$

$$C = \frac{-1}{2} - \frac{12}{2}$$

$$C = \frac{31}{4} \div \frac{-13}{2}$$

$$C = \frac{31}{4} \times \frac{-2}{13}$$

$$C = \frac{31}{-2 \times 2} \times \frac{1 \times 2}{13}$$

$$C = \frac{-31}{26}$$

Corrigé de l'exercice 15

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{9}{7} + \frac{-5}{14} \times 2$$

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

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

$$A =$$

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

$$A = \frac{4}{7}$$

$$B = \frac{-6}{5} \times \left(\frac{13}{9} + \frac{11}{10} \right)$$

$$B = \frac{-6}{5} \times \left(\frac{13 \times 10}{9 \times 10} + \frac{11 \times 9}{10 \times 9} \right)$$

$$B = \frac{-6}{5} \times \left(\frac{130}{90} + \frac{99}{90} \right)$$

$$B = \frac{-6}{5} \times \frac{229}{90}$$

$$B = \frac{-1 \times \cancel{6}}{5} \times \frac{229}{15 \times \cancel{6}}$$

$$B = \frac{-229}{75}$$

$$C = \frac{\frac{-1}{5} - 1}{\frac{-1}{2} + 5}$$

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

$$C = \frac{\frac{-1}{5} - \frac{5}{10}}{\frac{-1}{2} + \frac{10}{2}}$$

$$C = \frac{-6}{5} \div \frac{9}{2}$$

$$C = \frac{-6}{5} \times \frac{2}{9}$$

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

$$C = \frac{-4}{15}$$

Corrigé de l'exercice 16

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{-4}{3} \div \left(\frac{5}{11} - \frac{3}{2} \right)$$

$$A = \frac{-4}{3} \div \left(\frac{5 \times 2}{11 \times 2} - \frac{3 \times 11}{2 \times 11} \right)$$

$$A = \frac{-4}{3} \div \left(\frac{10}{22} - \frac{33}{22} \right)$$

$$A = \frac{-4}{3} \div \frac{-23}{22}$$

$$A = \frac{-4}{3} \times \frac{-22}{23}$$

$$A = \frac{-4}{-3 \times \cancel{1}} \times \frac{22 \times \cancel{1}}{23}$$

$$A = \frac{88}{69}$$

$$B = \frac{\frac{-10}{9} + 9}{\frac{8}{9} + 9}$$

$$B = \frac{\frac{-10}{9} + \frac{9 \times 9}{1 \times 9}}{\frac{8}{9} + \frac{9 \times 9}{1 \times 9}}$$

$$B = \frac{\frac{-10}{9} + \frac{81}{9}}{\frac{8}{9} + \frac{81}{9}}$$

$$B = \frac{71}{9} \div \frac{89}{9}$$

$$B = \frac{71}{9} \times \frac{9}{89}$$

$$B = \frac{71}{1 \times \cancel{9}} \times \frac{1 \times \cancel{9}}{89}$$

$$B = \frac{71}{89}$$

$$C = \frac{35}{9} + \frac{7}{18} \times \frac{-9}{7}$$

$$C = \frac{35}{9} + \frac{1 \times \cancel{7}}{-2 \times \cancel{9}} \times \frac{1 \times \cancel{9}}{1 \times \cancel{7}}$$

$$C = \frac{35}{9} + \frac{-1}{2}$$

$$C = \frac{35 \times 2}{9 \times 2} + \frac{-1 \times 9}{2 \times 9}$$

$$C = \frac{70}{18} + \frac{-9}{18}$$

$$C = \frac{61}{18}$$

Corrigé de l'exercice 17

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{\frac{-8}{9} - 3}{\frac{-8}{9} + 9}$$

$$A = \frac{\frac{-8}{9} - \frac{3 \times 9}{1 \times 9}}{\frac{-8}{9} + \frac{9 \times 9}{1 \times 9}}$$

$$A = \frac{\frac{-8}{9} - \frac{27}{9}}{\frac{-8}{9} + \frac{81}{9}}$$

$$A = \frac{-35}{9} \div \frac{73}{9}$$

$$A = \frac{-35}{9} \times \frac{9}{73}$$

$$A = \frac{-35}{1 \times \cancel{9}} \times \frac{1 \times \cancel{9}}{73}$$

$$A = \frac{-35}{73}$$

$$B = \frac{-1}{2} \times \left(\frac{-9}{5} - \frac{-5}{3} \right)$$

$$B = \frac{-1}{2} \times \left(\frac{-9 \times 3}{5 \times 3} - \frac{-5 \times 5}{3 \times 5} \right)$$

$$B = \frac{-1}{2} \times \left(\frac{-27}{15} - \frac{-25}{15} \right)$$

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

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

$$B = \frac{1}{15}$$

$$C = \frac{-91}{3} - \frac{-26}{3} \times \frac{6}{65}$$

$$C = \frac{-91}{3} - \frac{-2 \times \cancel{13}}{1 \times \cancel{3}} \times \frac{2 \times \cancel{3}}{5 \times \cancel{13}}$$

$$C = \frac{-91}{3} - \frac{-4}{5}$$

$$C = \frac{-91 \times 5}{3 \times 5} - \frac{-4 \times 3}{5 \times 3}$$

$$C = \frac{-455}{15} - \frac{-12}{15}$$

$$C = \frac{-443}{15}$$