

Exercice 1

$$A = \frac{-11}{8} - \frac{7}{24} = \frac{-33}{24} - \frac{7}{24} = \frac{-40}{24} = \frac{-5}{3}$$

$$B = \frac{36}{14} \times \frac{35}{24} = \frac{12 \times 3 \times 5 \times 7}{7 \times 2 \times 12 \times 2} = \frac{15}{4}$$

$$C = \frac{\frac{4}{15}}{\frac{16}{21}} = \frac{4}{15} \times \frac{21}{16} = \frac{4 \times 3 \times 7}{3 \times 5 \times 4 \times 4} = \frac{7}{20}$$

$$D = \frac{9}{4} - \frac{11}{4} \times \frac{7}{8} = \frac{9}{4} - \frac{77}{32} = \frac{72}{32} - \frac{77}{32} = \frac{-5}{32}$$

Exercice 2

$$A = -\frac{13}{7} + \frac{9}{14} = \frac{-26}{14} + \frac{9}{14} = \frac{-17}{14}$$

$$B = \frac{11}{35} + \frac{9}{15} = \frac{11}{35} + \frac{3}{5} = \frac{11}{35} + \frac{21}{35} = \frac{32}{35}$$

$$C = \frac{24}{26} - \frac{9}{39} = \frac{12}{13} - \frac{3}{13} = \frac{9}{13}$$

$$D = \frac{\frac{-21}{24}}{\frac{7}{-32}} = \frac{\frac{-7}{8}}{\frac{7}{-32}} = \frac{7}{8} \times \frac{32}{7} = \frac{32}{8} = 4$$

Exercice 3

$$A = \frac{\frac{51}{18}}{\frac{12}{1}} = \frac{51}{18} \times \frac{1}{12} = \frac{17 \times 3}{6 \times 3 \times 3 \times 4} = \frac{17}{72}$$

$$B = \frac{2}{3} + \frac{4 \times \frac{7}{3}}{21} = \frac{2}{3} + \frac{\frac{28}{3}}{21} = \frac{2}{3} + \frac{\frac{28}{3}}{\frac{21}{1}} = \frac{2}{3} + \frac{28}{3} \times \frac{1}{21} = \frac{2}{3} + \frac{7 \times 4}{3 \times 7 \times 3} = \frac{2}{3} + \frac{4}{9} = \frac{6}{9} + \frac{4}{9} = \frac{10}{9}$$

$$C = \frac{(\frac{27}{15} + \frac{45}{25}) \times 20}{33} = \frac{(\frac{9}{5} + \frac{9}{5}) \times 20}{33} = \frac{\frac{18}{5} \times 20}{33} = \frac{18 \times \frac{20}{5}}{33} = \frac{18 \times 4}{33} = \frac{3 \times 6 \times 4}{3 \times 11} = \frac{24}{11}$$

$$D = \frac{(\frac{7}{6} - \frac{11}{4}) \times 2}{\frac{1}{2} + \frac{2}{3}} = \frac{(\frac{14}{12} - \frac{33}{12}) \times 2}{\frac{3}{6} + \frac{4}{6}} = \frac{\frac{-19}{12} \times 2}{\frac{7}{6}} = \frac{-19 \times \frac{2}{12}}{\frac{7}{6}} = \frac{\frac{-19}{6}}{\frac{7}{6}} = \frac{-19}{6} \times \frac{6}{7} = \frac{-19}{7}$$

Exercice 4

$$A = \frac{12}{7} + \frac{6}{7} \times \frac{1}{3} = \frac{12}{7} + \frac{2}{7} = \frac{14}{7} = 2$$

$$B = \frac{\frac{14}{3}}{\frac{3}{4} - \frac{1}{6}} = \frac{\frac{14}{3}}{\frac{9}{12} - \frac{2}{12}} = \frac{\frac{14}{3}}{\frac{7}{12}} = \frac{14}{3} \times \frac{12}{7} = \frac{7 \times 2 \times 3 \times 4}{3 \times 7} = 8$$

Exercice 5

1. Suite à la vente du tiers de ses appartements, il lui en reste les deux tiers.

Les trois cinquième de ces deux tiers représente $\frac{3}{5} \times \frac{2}{3}$.

Il lui reste donc $1 - (\frac{1}{3} + \frac{3}{5} \times \frac{2}{3}) = 1 - (\frac{1}{3} + \frac{2}{5}) = 1 - (\frac{5}{15} + \frac{6}{15}) = 1 - \frac{11}{15} = \frac{4}{15}$ de ses appartements à vendre.

2. Soit N le nombre total d'appartements au départ. On a donc :

$$24 = \frac{4}{15} \times N \text{ donc } N = \frac{24 \times 15}{4} = 6 \times 15 = 90. \text{ Il avait donc 90 appartements au départ.}$$

Exercice 6

Cette égalité est fausse car par exemple $\frac{3}{4} = 0,75$ mais $\frac{4}{5} = 0,8 \neq 0,75$.