

Exercice 1

a) $12 + 3 \cdot 2 - 1 + 3 = 12 + 6 - 1 + 3 = 18 - 1 + 3 = 17 + 3 = 20$

b) $2,5 - 3(5,1 - 1) = 2,5 - 3 \cdot 4,1 = 2,5 - 12,3 = -9,8$

c) $(\sqrt{5})^2 = 5$ ($\sqrt{\quad}$ et $(\quad)^2$ sont des opérations inverses)

d) $(-2)^3 - 2^2 = -8 - 4 = -12$

e) $\sqrt{4^2 \cdot 9} = \sqrt{4^2} \cdot \sqrt{9} = 4 \cdot 3 = 12$ (ou $\sqrt{4^2 \cdot 9} = \sqrt{16 \cdot 9} = \sqrt{144} = 12$).

Exercice 2

a) $\frac{5}{6} \cdot \frac{24}{7} \cdot \frac{14}{40} = \frac{5}{1} \cdot \frac{4}{7} \cdot \frac{14}{40} = \frac{5}{1} \cdot \frac{1}{7} \cdot \frac{14}{20} = \frac{1}{1} \cdot \frac{1}{7} \cdot \frac{14^2}{2} = \frac{1}{1} \cdot \frac{1}{7} \cdot \frac{2}{1} = \frac{1}{1} \cdot \frac{1}{1} \cdot \frac{1}{1} = 1$.

(ou $\frac{5}{6} \cdot \frac{24}{7} \cdot \frac{14}{40} = \frac{5 \cdot 24 \cdot 14}{6 \cdot 7 \cdot 40} = \frac{1680}{1680} = \frac{1}{1} = 1$).

b) $\frac{7}{4} - \frac{1}{3} = \frac{7 \cdot 3 - 1 \cdot 4}{4 \cdot 3} = \frac{21 - 4}{12} = \frac{17}{12}$. Donc:

$$\frac{7}{4} - \frac{1}{3} + \frac{5}{6} = \frac{17}{12} + \frac{5}{6} = \frac{17 \cdot 6 + 5 \cdot 12}{12 \cdot 6} = \frac{102 + 60}{72} = \frac{162}{72} = \frac{81}{36} = \frac{27}{12} = \frac{9}{4}$$

c) $-2 \left(\frac{1}{3} - \frac{3}{5} \right) = -2 \cdot \left(\frac{1 \cdot 5 - 3 \cdot 3}{15} \right) = -2 \cdot \left(\frac{5 - 9}{15} \right) = -2 \cdot \left(\frac{-4}{15} \right) = \frac{-2}{1} \cdot \frac{-4}{15} = \frac{(-2) \cdot (-4)}{1 \cdot 15} = \frac{8}{15}$

d) $\sqrt{\frac{64}{49}} = \frac{\sqrt{64}}{\sqrt{49}} = \frac{8}{7}$

e) $\left(\frac{3}{2} \right)^3 : \frac{9}{5} = \frac{3^3}{2^3} : \frac{9}{5} = \frac{27}{8} : \frac{9}{5} = \frac{27}{8} \cdot \frac{5}{9} = \frac{3 \cdot 5}{8 \cdot 1} = \frac{15}{8}$

Exercice 3

$$2,5 = \frac{25}{10} = \frac{5}{2}$$

$$0,125 = \frac{125}{1000} = \frac{25}{200} = \frac{5}{40} = \frac{1}{8}$$

$$2,\overline{3} = 2 + \frac{1}{3} = \frac{2}{1} + \frac{1}{3} = \frac{2 \cdot 3 + 1 \cdot 1}{1 \cdot 3} = \frac{6 + 1}{3} = \frac{7}{3}$$

Exercice 4

a) $\frac{1}{50} = 1 : 50 = (1 : 100) \cdot 2 = 0,01 \cdot 2 = 0,02$

b) $\frac{25}{10} = 25 : 10 = 2,5$

c) $\frac{3}{4} = 3 : 4 = (3 : 2) : 2 = 1,5 : 2 = 0,75$

Exercice 5

a) $0,0144 = 1,44 \cdot 10^{-2}$

b) $2335500 = 2,3355 \cdot 10^6$

c) $0,00040 = 4 \cdot 10^{-4}$

Exercice 6

$$\begin{array}{l|l} \text{a) } \frac{5x}{2} = 25 & \cdot 2 \\ 5x = 50 & : 5 \\ x = 10 & \end{array}$$

$$\begin{array}{l|l} \text{b) } 2t + 7 = 8 - 3t & + 3t \\ 5t + 7 = 8 & - 7 \\ 5t = 1 & : 5 \\ t = \frac{1}{5} = 0,2 & \end{array}$$

$$\begin{array}{l|l} \text{c) } A = 2\pi r^2 & : 2\pi \\ \frac{A}{2\pi} = r^2 & \sqrt{\quad} \\ \sqrt{\frac{A}{2\pi}} = r & \end{array}$$