

Calculs Numériques

Exercice 1.

Simplifier l'écriture :

$$\sqrt{\frac{144}{169}} = \frac{12}{13}$$

$$\sqrt{\frac{50}{98}} = \frac{5}{7}$$

$$\sqrt{32} \times \sqrt{2} = \sqrt{64} = 8$$

$$\sqrt{64 + 36} = \sqrt{100} = 10$$

$$\sqrt{18^2} = 18$$

$$\sqrt{256} = 16$$

$$\sqrt{0,01} = 0,1$$

$$\sqrt{36 \times 25} = 6 \times 5 = 30$$

Exercice 2.

Mettre sous la forme : $a\sqrt{b}$.

Exemple:

$$\sqrt{128} = \sqrt{64} \times \sqrt{2} = 8 \times \sqrt{2} = 8\sqrt{2}$$

$$\sqrt{27} = 3\sqrt{3} \quad ; \quad \sqrt{72} = 6\sqrt{2}$$

$$\sqrt{98} = 7\sqrt{2} \quad ; \quad \sqrt{48} = 4\sqrt{3}$$

Exercice 3.

Déterminer la longueur de l'hypoténuse d'un triangle rectangle dont les deux autres côtés sont de 12 m et 5 m.

On aura par le théorème de Pythagore :

$$h^2 = 144 + 25 = 169 ; h = \sqrt{169} = 13 \text{ ou } h = 13 \text{ m.}$$

Exercice 4.

Calculer les données suivantes :

$$\frac{1 - \frac{2}{3}}{1 + \frac{2}{3}} = \frac{1}{3} \times \frac{3}{5} = \boxed{\frac{1}{5}}$$

$$\frac{\frac{1}{3} + \frac{1}{4} - \frac{1}{5}}{\frac{1}{3} - \frac{1}{4} + \frac{1}{5}} = \frac{23}{60} \times \frac{60}{17} = \boxed{\frac{23}{17}}$$

$$\sqrt{12 \times 27} = \sqrt{324} = \boxed{18}$$

$$\sqrt{\frac{1}{2} \times \frac{2}{49}} = \frac{1}{\sqrt{49}} = \boxed{\frac{1}{7}}$$

$$\sqrt{\frac{1 - \frac{2}{3}}{1 + \frac{2}{3}}} = \sqrt{\frac{1}{5}} = \frac{\sqrt{5}}{\sqrt{5 \times 5}} = \boxed{\frac{\sqrt{5}}{5}}$$

$$\sqrt{10^4 \times 10^2} = \sqrt{1\,000\,000} = \boxed{1\,000 = 10^3}$$

Exercice 5.

Calculer le côté AB de ce triangle rectangle,

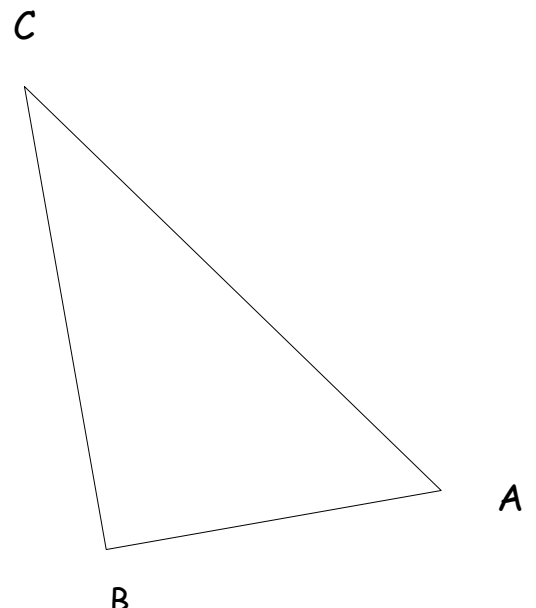
Sachant que :

$$\begin{cases} AC = 7,5 \text{ cm} \\ BC = 6 \text{ cm} \end{cases}$$

D'après le théorème de Pythagore, on a :

$$AB^2 = AC^2 - BC^2 = 7,5^2 - 6^2 = 20,25; \text{ d'où:}$$

$$AB = \sqrt{20,25} = 4,5. \quad \boxed{AB = 4,5 \text{ cm}}$$



Exercice 6. Simplifier l'écriture de :

$$\sqrt{144 + 25} = \sqrt{169} = \boxed{13}$$

$$\sqrt{123^2} = \boxed{123}$$

$$(\sqrt{7})^2 = \boxed{7}$$

$$\sqrt{216} = \sqrt{36 \times 6} = \sqrt{36} \times \sqrt{6} = \boxed{6\sqrt{6}}$$

$$\sqrt{\frac{128}{1250}} = \sqrt{\frac{64}{625}} = \frac{\sqrt{64}}{\sqrt{625}} = \boxed{\frac{8}{25}}$$

$$\sqrt{2} \times \sqrt{8} = \sqrt{16} = \boxed{4}$$

$$\sqrt{50} = \sqrt{25 \times 2} = \sqrt{25} \times \sqrt{2} = 5 \times \sqrt{2} = \boxed{5\sqrt{2}}$$

$$\sqrt{108} = \sqrt{36 \times 3} = \sqrt{36} \times \sqrt{3} = 6 \times \sqrt{3} = \boxed{6\sqrt{3}}$$

$$\sqrt{\frac{1}{10\,000}} = \frac{1}{\sqrt{10\,000}} = \boxed{\frac{1}{100}}$$

$$\sqrt{242} = \sqrt{121 \times 2} = \sqrt{121} \times \sqrt{2} = 11 \times \sqrt{2} = \boxed{11\sqrt{2}}$$

$$\frac{7}{\sqrt{2}} = \boxed{\frac{7\sqrt{2}}{2}}$$

$$\frac{-11}{\sqrt{3}} = \boxed{\frac{-11\sqrt{3}}{3}}$$

$$\frac{23}{\sqrt{5}} = \boxed{\frac{23\sqrt{5}}{5}}$$

$$\sqrt{\sqrt{256}} = \sqrt{16} = \boxed{4}$$

$$\sqrt{10^5} = \sqrt{10\,000 \times 10} = \sqrt{10\,000} \times \sqrt{10} = \boxed{100\sqrt{10}}$$