

Exercice 1 : Corrigé

$$A = \sqrt{1} = \sqrt{1^2} = 1$$

$$B = \sqrt{16} = \sqrt{4^2} = 4$$

$$C = \sqrt{36} = 6$$

$$D = \sqrt{64} = 8$$

$$E = \sqrt{100} = 10$$

$$F = \sqrt{16} + \sqrt{9} - \sqrt{25} = 4 + 3 - 5 = 2$$

Exercice 2 : Corrigé

$$A = \sqrt{8} = \sqrt{4 \times 2} = \sqrt{4} \times \sqrt{2} = 2\sqrt{2}$$

$$B = \sqrt{27} = \sqrt{9 \times 3} = \sqrt{9} \times \sqrt{3} = 3\sqrt{3}$$

$$C = \sqrt{20} = \sqrt{4 \times 5} = \sqrt{4} \times \sqrt{5} = 2\sqrt{5}$$

$$D = \sqrt{45} = \sqrt{9 \times 5} = \sqrt{9} \times \sqrt{5} = 3\sqrt{5}$$

$$E = \sqrt{150} = \sqrt{25 \times 6} = \sqrt{25} \times \sqrt{6} = 5\sqrt{6}$$

Exercice 3 : Corrigé

$$A = 3\sqrt{2} = \sqrt{9} \times \sqrt{2} = \sqrt{9 \times 2} = \sqrt{18}$$

$$B = 5\sqrt{3} = \sqrt{25} \times \sqrt{3} = \sqrt{25 \times 3} = \sqrt{75}$$

$$C = 4\sqrt{5} = \sqrt{16} \times \sqrt{5} = \sqrt{16 \times 5} = \sqrt{80}$$

$$D = 2\sqrt{7} = \sqrt{4} \times \sqrt{7} = \sqrt{4 \times 7} = \sqrt{28}$$

$$E = 7\sqrt{2} = \sqrt{49} \times \sqrt{2} = \sqrt{49 \times 2} = \sqrt{98}$$

Exercice 4 : Corrigé

$$A = \sqrt{100 - 64} = \sqrt{36} = 6$$

$$B = \sqrt{\frac{35}{4} \times \frac{7}{45}} = \sqrt{\frac{35 \times 7}{4 \times 45}} = \sqrt{\frac{5 \times 7 \times 7}{4 \times 5 \times 9}} = \sqrt{\frac{49}{4 \times 9}} = \frac{\sqrt{49}}{\sqrt{36}} = \frac{7}{6}$$

$$C = \sqrt{\frac{49}{400}} + \frac{(\sqrt{3})^2}{10} = \sqrt{\frac{49}{4 \times 100}} + \frac{3}{10} = \frac{\sqrt{49}}{\sqrt{4} \times \sqrt{100}} + \frac{3}{10} = \frac{7}{2 \times 10} + \frac{3}{10} = \frac{7}{20} + \frac{3}{10} = \frac{7}{20} + \frac{6}{20} = \frac{13}{20}$$

Exercice 5 : Corrigé

$$A = 2\sqrt{3} + 6\sqrt{3} = 8\sqrt{3}$$

$$B = \sqrt{5} - 9\sqrt{5} = -8\sqrt{5}$$

$$C = \sqrt{5} + 2\sqrt{45} = \sqrt{5} + 2 \times 3\sqrt{5} = \sqrt{5} + 6\sqrt{5} = 7\sqrt{5}$$

$$D = \sqrt{12} - \sqrt{3} = 2\sqrt{3} - \sqrt{3} = \sqrt{3}$$

$$E = 3\sqrt{45} - 2\sqrt{20} = 3 \times 3 \times \sqrt{5} - 2 \times 2 \times \sqrt{5} = 9\sqrt{5} - 4\sqrt{5} = 5\sqrt{5}$$

$$F = \sqrt{8} + 7\sqrt{18} = 2\sqrt{2} + 7 \times 3\sqrt{2} = 2\sqrt{2} + 21\sqrt{2} = 23\sqrt{2}$$

$$G = 2\sqrt{5} + 2\sqrt{125} - 7\sqrt{45} = 2\sqrt{5} + 2 \times 5 \times \sqrt{5} - 7 \times 3 \times \sqrt{5} = 2\sqrt{5} + 10\sqrt{5} - 21\sqrt{5} = -9\sqrt{5}$$

$$H = 5\sqrt{3} - 2\sqrt{48} + 2\sqrt{27} = 5\sqrt{3} - 2 \times 4 \times \sqrt{3} + 2 \times 3 \times \sqrt{3} = 5\sqrt{3} - 8\sqrt{3} + 6\sqrt{3} = 3\sqrt{3}$$

$$I = \sqrt{98} - 2\sqrt{50} + \sqrt{8} = 7\sqrt{2} - 2 \times 5 \times \sqrt{2} + 2\sqrt{2} = 7\sqrt{2} - 10\sqrt{2} + 2\sqrt{2} = -\sqrt{2}$$

$$J = 4\sqrt{2} \times \sqrt{90} = 4\sqrt{2} \times 3\sqrt{10} = 12\sqrt{2 \times 10} = 12\sqrt{20} = 12 \times 2\sqrt{5} = 24\sqrt{5}$$

$$K = 5\sqrt{6} \times 2\sqrt{3} = 10\sqrt{18} = 10 \times 3\sqrt{2} = 30\sqrt{2}$$

$$L = 2\sqrt{75} \times \sqrt{6} = 2 \times 5\sqrt{3} \times \sqrt{6} = 10\sqrt{18} = 10 \times 3\sqrt{2} = 30\sqrt{2}$$

$$\begin{aligned} M &= \sqrt{6 \times 6 \times 6 \times 6} + \sqrt{6 \times 6 \times 6} + \sqrt{6 \times 6} + \sqrt{6} \\ &= \sqrt{36 \times 36} + \sqrt{36 \times 6} + \sqrt{36} + \sqrt{6} \\ &= 36 + 6\sqrt{6} + 6 + \sqrt{6} \\ &= 42 + 7\sqrt{6} \end{aligned}$$

Exercice 6 : Corrigé

$$a) x = \sqrt{72} = \sqrt{36 \times 2} = \sqrt{36} \times \sqrt{2} = 6\sqrt{2}$$

$$y = \sqrt{98} = \sqrt{49 \times 2} = \sqrt{49} \times \sqrt{2} = 7\sqrt{2}$$

$$b) x^2 - y^2 = (\sqrt{72})^2 - (\sqrt{98})^2 = 72 - 98 = -26$$

$$x + y = 6\sqrt{2} + 7\sqrt{2} = 13\sqrt{2}$$