

Correction : simplifier des racines carrées

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Exercice 1

a) $a = \sqrt{49} = \sqrt{7^2} = \boxed{7}$.

b) $b = \sqrt{18} = \sqrt{9 \times 2} = \sqrt{9} \times \sqrt{2} = \sqrt{3^2} \times \sqrt{2} = \boxed{3\sqrt{2}}$.

c) $c = \sqrt{50} = \sqrt{25 \times 2} = \sqrt{25} \times \sqrt{2} = \sqrt{5^2} \times \sqrt{2} = \boxed{5\sqrt{2}}$.

d) $d = \sqrt{48} = \sqrt{16 \times 3} = \sqrt{16} \times \sqrt{3} = \boxed{4\sqrt{3}}$.

Exercice 2

a) $A = 4\sqrt{48} - 3\sqrt{75} = 4\sqrt{16 \times 3} - 3\sqrt{25 \times 3} = 4\sqrt{16} \times \sqrt{3} - 3\sqrt{25} \times \sqrt{3} = 4 \times 4\sqrt{3} - 3 \times 5\sqrt{3} = 16\sqrt{3} - 15\sqrt{3} = \boxed{\sqrt{3}}$.

b) $B = 3\sqrt{40} - \sqrt{45} \times \sqrt{8} = 3\sqrt{4 \times 10} - \sqrt{9 \times 5} \times \sqrt{4 \times 2} = 3\sqrt{4} \times \sqrt{10} - \sqrt{9} \times \sqrt{5} \times \sqrt{4} \times \sqrt{2} = 3 \times 2\sqrt{10} - 3\sqrt{5} \times 2\sqrt{2}$
 $B = 6\sqrt{10} - 3 \times 2 \times \sqrt{5} \times \sqrt{2} = 6\sqrt{10} - 6\sqrt{5 \times 2} = 6\sqrt{10} - 6\sqrt{10} = \boxed{0}$.

c) $C = 2\sqrt{63} - 5\sqrt{28} + \sqrt{7} = 2\sqrt{9 \times 7} - 5\sqrt{4 \times 7} + \sqrt{7} = 2\sqrt{9} \times \sqrt{7} - 5\sqrt{4} \times \sqrt{7} + \sqrt{7} = 2 \times 3\sqrt{7} - 5 \times 2\sqrt{7} + \sqrt{7}$
 $C = 6\sqrt{7} - 10\sqrt{7} + \sqrt{7} = -4\sqrt{7} + 1\sqrt{7} = \boxed{-3\sqrt{7}}$.

d) $D = \frac{8\sqrt{6}}{2\sqrt{3}} = \frac{8}{2} \times \frac{\sqrt{6}}{\sqrt{3}} = 4\sqrt{\frac{6}{3}} = \boxed{4\sqrt{2}}$.

e) $E = \sqrt{32} \times \sqrt{2} - \frac{\sqrt{27}}{\sqrt{48}} = \sqrt{32 \times 2} - \frac{\sqrt{9 \times 3}}{\sqrt{16 \times 3}} = \sqrt{64} - \frac{\sqrt{9} \times \sqrt{3}}{\sqrt{16} \times \sqrt{3}} = \sqrt{8^2} - \frac{3}{4} = 8 - \frac{3}{4} = \frac{32}{4} - \frac{3}{4} = \boxed{\frac{29}{4}}$.

f) $F = 7\sqrt{27} + 2\sqrt{75} - \sqrt{12} = 7\sqrt{9 \times 3} + 2\sqrt{25 \times 3} - \sqrt{4 \times 3} = 7\sqrt{9} \times \sqrt{3} + 2\sqrt{25} \times \sqrt{3} - \sqrt{4} \times \sqrt{3} = 7 \times 3\sqrt{3} + 2 \times 5\sqrt{3} - 2\sqrt{3}$
 $E = 21\sqrt{3} + 10\sqrt{3} - 2\sqrt{3} = 31\sqrt{3} - 2\sqrt{3} = \boxed{29\sqrt{3}}$.

g) $G = \sqrt{128} - \frac{\sqrt{54}}{\sqrt{12}} = \sqrt{64 \times 2} - \frac{\sqrt{9 \times 6}}{\sqrt{4 \times 3}} = \sqrt{64} \times \sqrt{2} - \frac{\sqrt{9} \times \sqrt{6}}{\sqrt{4} \times \sqrt{3}} = 8\sqrt{2} - \frac{3\sqrt{6}}{2\sqrt{3}} = 8\sqrt{2} - \frac{3}{2} \times \frac{\sqrt{6}}{\sqrt{3}} = 8\sqrt{2} - \frac{3}{2} \times \sqrt{\frac{6}{3}}$
 $G = 8\sqrt{2} - \frac{3}{2}\sqrt{2} = \frac{16}{2}\sqrt{2} - \frac{3}{2}\sqrt{2} = \frac{13}{2}\sqrt{2} = \boxed{\frac{13\sqrt{2}}{2}}$.