Correctif ex complémentaires : Simplification des racines carrées

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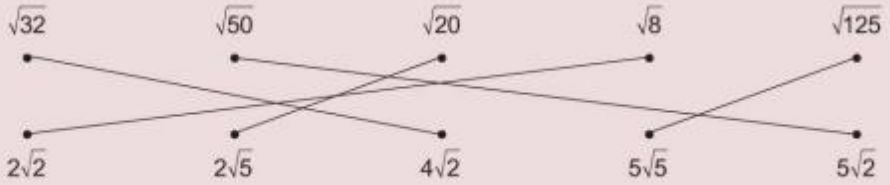

7 a) (1) $\sqrt{12} = 2\sqrt{3}$ $\sqrt{18} = 3\sqrt{2}$ $\sqrt{50} = 5\sqrt{2}$ $\sqrt{75} = 5\sqrt{3}$

$\sqrt{8} = 2\sqrt{2}$ $\sqrt{27} = 3\sqrt{3}$ $\sqrt{64} = 8$ $\sqrt{125} = 5\sqrt{5}$

(2) $\sqrt{250} = 5\sqrt{10}$ $\sqrt{20} = 2\sqrt{5}$ $\sqrt{60} = 2\sqrt{15}$ $\sqrt{80} = 4\sqrt{5}$

$\sqrt{90} = 3\sqrt{10}$ $\sqrt{121} = 11$ $\sqrt{242} = 11\sqrt{2}$ $\sqrt{225} = 15$

b) (1) $3\sqrt{8} = 3 \cdot 2\sqrt{2} = 6\sqrt{2}$ $2\sqrt{12} = 2 \cdot 2\sqrt{3} = 4\sqrt{3}$ $4\sqrt{63} = 4 \cdot 3\sqrt{7} = 12\sqrt{7}$

$5\sqrt{18} = 5 \cdot 3\sqrt{2} = 15\sqrt{2}$ $6\sqrt{50} = 6 \cdot 5\sqrt{2} = 30\sqrt{2}$ $3\sqrt{28} = 3 \cdot 2\sqrt{7} = 6\sqrt{7}$

$5\sqrt{32} = 5 \cdot 4\sqrt{2} = 20\sqrt{2}$ $4\sqrt{27} = 4 \cdot 3\sqrt{3} = 12\sqrt{3}$

(2) $7\sqrt{45} = 7 \cdot 3\sqrt{5} = 21\sqrt{5}$ $3\sqrt{500} = 3 \cdot 10\sqrt{5} = 30\sqrt{5}$ $8\sqrt{72} = 8 \cdot 6\sqrt{2} = 48\sqrt{2}$

$5\sqrt{18} = 5 \cdot 3\sqrt{2} = 15\sqrt{2}$ $9\sqrt{54} = 9 \cdot 3\sqrt{6} = 27\sqrt{6}$ $7\sqrt{75} = 7 \cdot 5\sqrt{3} = 35\sqrt{3}$

$3\sqrt{128} = 3 \cdot 8\sqrt{2} = 24\sqrt{2}$ $6\sqrt{162} = 6 \cdot 9\sqrt{2} = 54\sqrt{2}$

c) (1) $\sqrt{2^2} = 2$ $\sqrt{5^4} = 5^2 = 25$ $\sqrt{3^6} = 3^3 = 27$ $\sqrt{2^6 \cdot 3^2} = 2^3 \cdot 3 = 8 \cdot 3 = 24$

$\sqrt{2^4 \cdot 3^6} = 2^2 \cdot 3^3 = 4 \cdot 27 = 108$ $\sqrt{5^4 \cdot 7^2} = 5^2 \cdot 7 = 25 \cdot 7 = 175$

(2) $\sqrt{2^4 \cdot 3} = 2^2 \cdot \sqrt{3} = 4\sqrt{3}$ $\sqrt{2 \cdot 3^6} = 3^3 \cdot \sqrt{2} = 27\sqrt{2}$ $\sqrt{5^3 \cdot 7} = 5\sqrt{5 \cdot 7} = 5\sqrt{35}$

$\sqrt{2^9 \cdot 5} = 2^4 \cdot \sqrt{2 \cdot 5} = 16\sqrt{10}$ $\sqrt{3^3 \cdot 5^4 \cdot 7^2} = 3 \cdot 5^2 \cdot 7 \cdot \sqrt{3} = 525\sqrt{3}$

$\sqrt{2^8 \cdot 3^2 \cdot 5^3} = 2^4 \cdot 3 \cdot 5 \cdot \sqrt{5} = 240\sqrt{5}$

(3) $\sqrt{4^7} = \sqrt{(2^2)^7} = \sqrt{2^{14}} = 2^7 = 128$ $\sqrt{16^3} = \sqrt{(2^4)^3} = \sqrt{2^{12}} = 2^6 = 64$

$\sqrt{25^3} = \sqrt{(5^2)^3} = \sqrt{5^6} = 5^3 = 125$ $\sqrt{100^5} = \sqrt{(10^2)^5} = \sqrt{10^{10}} = 10^5 = 100\,000$

$\sqrt{8^5} = \sqrt{(2^3)^5} = \sqrt{2^{15}} = 2^7 \cdot \sqrt{2} = 128\sqrt{2}$

$\sqrt{12^3} = \sqrt{(2^2 \cdot 3)^3} = \sqrt{2^6 \cdot 3^3} = 2^3 \cdot 3 \cdot \sqrt{3} = 24\sqrt{3}$