Only like radicals may be added or subtracted

$\sqrt{3}$, $4\sqrt{3}$, $-7\sqrt{3}$, ~~$\sqrt[3]{3}$~~ , ~~$\sqrt{2}$~~

ex. 1 $4\sqrt{3} + 7\sqrt{3} = 11\sqrt{3}$

add numbers in front, keep radical the same

2. $-7\sqrt{2} + 4\sqrt{2} - 5\sqrt{5} = -3\sqrt{2} - 5\sqrt{5}$

3. $\sqrt{18} + \sqrt{20} - \sqrt{50}$ simplify

$9.2 \quad 4.5 \quad 25.2$

$= 3\sqrt{2} + 2\sqrt{5} - 5\sqrt{2}$

$= -2\sqrt{2} + 2\sqrt{5}$

4. $7\sqrt{m} + 2\sqrt{n} - 5\sqrt{n} - 3\sqrt{m}$

$= 4\sqrt{m} - 3\sqrt{n}$

5. $5\sqrt{8x^3} - 3x\sqrt{50x}$ simplify

5. $5\sqrt{8x^3} - 3x\sqrt{50x}$

$5 \cdot \sqrt{8} \cdot \sqrt{x^3}$ → $5 \cdot 4 \cdot 2 \cdot x^2 \cdot x$ → $5 \cdot 2\sqrt{2} \cdot x\sqrt{x}$

$3x \cdot \sqrt{50} \cdot \sqrt{x}$ → $3x \cdot 25 \cdot 2 \cdot \sqrt{x}$ → $3x \cdot 5\sqrt{2}\sqrt{x}$

$= 10x\sqrt{2x} - 15x\sqrt{2x}$

$= -5x\sqrt{2x}$

6. $4y\sqrt{75y^3} - 2\sqrt{27y^5}$

$4y \cdot \sqrt{75} \cdot \sqrt{y^3}$ → $4y \cdot 25 \cdot 3 \cdot y^2 \cdot y$ → $4y \cdot 5\sqrt{3} \cdot y\sqrt{y}$

$2 \cdot \sqrt{27} \cdot \sqrt{y^5}$ → $2 \cdot 9 \cdot 3 \cdot y^4 \cdot y$ → $2 \cdot 3\sqrt{3} \cdot y^2\sqrt{y}$

$= 20y^2\sqrt{3y} - 6y^2\sqrt{3y}$

$= 14y^2\sqrt{3y}$

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