Name: _____   Date: _____   Period: _____

Radical PARTS:

$$2\sqrt{3}$$

coefficient   radical symbol   radicand
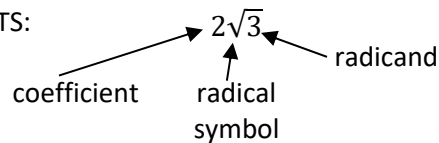
No coefficient means _____ in front

SIMPLIFYING: FACTOR using the HIGHEST PERFECT SQUARE (most efficient*):

STEP 1:   Break the radicand into **2 RADICAL factors**: the first one being the HIGHEST PERFECT SQUARE FACTOR.
STEP 2:   Take the square root of the PERFECT SQUARE (no more RADICAL) and leave the other factor under the radical.

Example: Simplify $\sqrt{48}$. Use factors 16 & 3, not 8 & 6. $\sqrt{16}\,\sqrt{3} = 4\sqrt{3}$

*Using HIGHEST PERFECT SQUARE saves you time and effort.

Simplify the following into simplest radical form…NO DECIMALS PLEASE.

1. $\sqrt{80}$	2. $\sqrt{40}$	3. $\sqrt{125}$	4. $\sqrt{192}$
5. $\sqrt{72}$	6. $\sqrt{96}$	7. $3\sqrt{50}$	8. $4\sqrt{27}$
9. $\sqrt{48x^3y^5}$	10. $-4\sqrt{98}$	11. $\sqrt{8x^6y^9}$	12. $\sqrt{75x^7y^5}$

ADDING AND/OR SUBTRACTING:

STEP 1:   Must be same radicands to add or subtract (LIKE terms). If radicands are NOT THE SAME, try to SIMPLIFY first.
STEP 2:   Add or subtract the outside coefficients (leave radicands as is, just like a denominator with fractions).

Simplify the following:

1. $5\sqrt{7} + 3\sqrt{7}$	2. $8\sqrt{2} - 4\sqrt{2}$	3. $2\sqrt{3} + \sqrt{12}$	4. $15\sqrt{5} - \sqrt{45}$

MULTIPLYING AND/OR DIVIDING:

STEP 1:   Multiply/Divide the COEFFICIENTS, keep them as COEFFICIENTS; then multiply/divide the RADICANDS, keep them as RADICANDS.
STEP 2:   SIMPLIFY the final answer, if you can.
REMINDER: ALWAYS rationalize the denominator (Leave NO RADICAL on the BOTTOM).

1. $2\sqrt{5} \cdot 7\sqrt{3}$	2. $4\sqrt{2} \cdot 5\sqrt{11}$	3. $3\sqrt{7} \cdot \sqrt{3}$	4. $4 \cdot 2\sqrt{3}$
5. $5\sqrt{14} \cdot \sqrt{2}$	6. $2\sqrt{3} \cdot \sqrt{12}$	7. $\dfrac{\sqrt{35}}{\sqrt{7}}$	8. $\dfrac{\sqrt{40}}{10\sqrt{5}}$
9. $\dfrac{2\sqrt{2}}{\sqrt{32}}$	10. $\dfrac{\sqrt{21}}{3\sqrt{7}}$	11. $\dfrac{\sqrt{6}}{\sqrt{7}}$	12. $\dfrac{2}{\sqrt{6}}$

Radical Review Sheet