

Name _____

Date _____

8A; Algebra 1

Period _____

Adding & Subtracting Radicals

**In order to add or subtract radicals, the radicands must be the same before you can combine them!

I. Steps:

- 1) If the radicands are not the same, simplify to find the common radicand.
- 2) Add/Subtract the Coefficients.
- 3) Place the "like" radicand next to the answer from step 2.

II. Express the following in simplest radical form.

1) $2\sqrt{3} + 5\sqrt{3}$	2) $6x\sqrt{5} - 2x\sqrt{5}$	3) $5\sqrt{7} + \sqrt{7}$
4) $\sqrt{50} + \sqrt{8}$	5) $5\sqrt{7} + 3\sqrt{28}$	6) $\sqrt{48} - \sqrt{3}$
7) $2x\sqrt{50} - x\sqrt{2}$	8) $6\sqrt{24} + \sqrt{54}$	9) $3\sqrt{18} - 5\sqrt{8}$

10) $2\sqrt{3} - \sqrt{27}$	11) $6\sqrt{2} + \sqrt{32}$	12) $3\sqrt{2} - 5\sqrt{8}$
13) $3\sqrt{3} + \sqrt{12}$	14) $12\sqrt{27} + 4\sqrt{6}$	15) $8x\sqrt{300} - 4x\sqrt{12}$
16) $7x\sqrt{40} + 3x\sqrt{90}$	17) $7x^2\sqrt{6} + x^2\sqrt{6}$	18) $3\sqrt{44} - 7\sqrt{11} + \sqrt{99}$
19) $6\sqrt{6x} + \sqrt{54x}$	20) $\sqrt{20} + 9\sqrt{5} - \sqrt{45}$	21) $10\sqrt{2} + 4\sqrt{200} - 6\sqrt{8}$

22) $\sqrt{3a^2} + \sqrt{48a^2}$	23) $\frac{16\sqrt{21}}{2\sqrt{7}} - 5\sqrt{12}$	24) $\frac{3\sqrt{75} + \sqrt{27}}{3}$
25) $(\sqrt{3} + \sqrt{2})(\sqrt{3} + \sqrt{2})$	26) $(5 + \sqrt{3})^2$	27) $(4 + \sqrt{5})(4 - \sqrt{5})$
28) What is the perimeter of a rectangle with length $5\sqrt{2}$ and width $\sqrt{32}$.	29) What is the perimeter of a square whose length of one side measures $3\sqrt{5}$?	30) Find the perimeter of a rectangle with length $7\sqrt{50}$ and width $4\sqrt{18}$.