Algebra 1B Name_____

11.2: Adding and Subtracting Square Roots

A radical expression is in simplest form when:

1. There are no perfect square factors under the radical
2. All like radicals have been combined- like radicals have the same radicand!
3. There are no fractions under the radical
4. There are not radicals in the denominator

Each of the following expressions contains fully-simplified radicals. Circle like radicals and combine them to simplify the expression:

1. $2\sqrt{3}+7\sqrt{2}-5\sqrt{2}$ $2\sqrt{3}+2\sqrt{2}$	2. $-3\sqrt{7}+\sqrt{7}-7\sqrt{6}$ $-2\sqrt{7}-7\sqrt{6}$	3. $\frac{3\cdot1}{3\cdot2}\sqrt{10}+\frac{2\cdot2}{2\cdot3}\sqrt{10}-\frac{4}{6\cdot1}\sqrt{10}$ $\frac{3}{6}\sqrt{10}+\frac{4}{6}\sqrt{10}-\frac{24}{6}\sqrt{10}$ $\frac{-17}{6}\sqrt{10}$

When asked to add or subtract radicals, simplify each first to see if any are like radicals that you can combine!

Simplify each expression fully:

4. $5\sqrt{3}+\sqrt{48}$ $5\sqrt{3}+\sqrt{16\cdot3}$ $5\sqrt{3}+4\sqrt{3}$ $9\sqrt{3}$	5. $\sqrt{63}-2\sqrt{28}$ $\sqrt{9\cdot7}-2\sqrt{4\cdot7}$ $3\sqrt{7}-2\cdot2\sqrt{7}$ $3\sqrt{7}-4\sqrt{7}$ $-1\sqrt{7}$	6. $7\sqrt{24}+\sqrt{21}-2\sqrt{54}$ $7\sqrt{4\cdot6}+\sqrt{21}-2\sqrt{9\cdot6}$ $7\cdot2\sqrt{6}+\sqrt{21}-2\cdot3\sqrt{6}$ $14\sqrt{6}+\sqrt{21}-6\sqrt{6}$ $8\sqrt{6}+\sqrt{21}$
7. $\sqrt{45}-\sqrt{845}$ $\sqrt{9\cdot5}-\sqrt{169\cdot5}$ $3\sqrt{5}-13\sqrt{5}$ $-10\sqrt{5}$	8. $\sqrt{12x^3}-3x\sqrt{75x}$ $\sqrt{4\cdot3\cdot x^2\cdot x}-3x\sqrt{25\cdot3\cdot x}$ $2x\sqrt{3x}-3x\cdot5\sqrt{3x}$ $2x\sqrt{3x}-15x\sqrt{3x}$ $-13x\sqrt{3x}$	9. $\sqrt{200p^2}+5\sqrt{72p^4}$ $\sqrt{100\cdot2\cdot p^2}+5\sqrt{36\cdot2\cdot p^2\cdot p^2}$ $10p\sqrt{2}+5\cdot6\cdot p\cdot p\sqrt{2}$ $10p\sqrt{2}+30p^2\sqrt{2}$