Name _____**Per**_____ **Date** ____. **due** ____. **Simplifying Radicals**

Simplifying Radicals: Finding hidden perfect squares and taking their root.

Simplify each expression by factoring to find perfect squares and then taking their root.

1) $\sqrt{75}$

2) $\sqrt{16}$

3) $\sqrt{36}$

4) $\sqrt{64}$

5) $\sqrt{80}$

6) $\sqrt{30}$

7) $\sqrt{8}$

8) $\sqrt{18}$

9) $\sqrt{32}$

10) $\sqrt{12}$

11) $\sqrt{8}$

12) $\sqrt{108}$

13) $\sqrt{125}$

14) $\sqrt{50}$

15) $\sqrt{175}$

16) $\sqrt{28}$

17) $\sqrt{45}$

18) $\sqrt{72}$

19) $\sqrt{20}$

20) $\sqrt{150}$

Simplifying Radical Expressions: Adding and Subtracting

☐ Add or subtract radicals by simplifying each term and then combining like terms.

a. $2\sqrt{2} + \sqrt{5} - 6\sqrt{2} = -4\sqrt{2} + \sqrt{5}$ **Subtract like radicals.**

b. $4\sqrt{3} - \sqrt{27} = 4\sqrt{3} - \sqrt{9 \cdot 3}$ **Perfect square factor**

$= 4\sqrt{3} - \sqrt{9} \cdot \sqrt{3}$ **Use product property.**

$= 4\sqrt{3} - 3\sqrt{3}$ **Simplify.**

$= \sqrt{3}$ **Subtract like radicals.**

1) $3\sqrt{6} - 4\sqrt{6}$

2) $-3\sqrt{7} + 4\sqrt{7}$

3) $-11\sqrt{21} - 11\sqrt{21}$

4) $-9\sqrt{15} + 10\sqrt{15}$

5) $-10\sqrt{7} + 12\sqrt{7}$

6) $-3\sqrt{17} - 4\sqrt{17}$

7) $-10\sqrt{11} - 11\sqrt{11}$

8) $-2\sqrt{3} + 3\sqrt{27}$

9) $2\sqrt{6} - 2\sqrt{24}$

10) $2\sqrt{6} + 3\sqrt{54}$

11) $-\sqrt{12} + 3\sqrt{3}$

12) $3\sqrt{3} - \sqrt{27}$

13) $3\sqrt{8} + 3\sqrt{2}$

14) $-3\sqrt{6} + 3\sqrt{6}$