Radical Addition / Binomial Operations

Date_____ Period____

Simplify.

1) $-\sqrt{2} - \sqrt{2}$

2) $-3\sqrt{6} - 2\sqrt{2} - 3\sqrt{2}$

3) $3\sqrt{5} - 3\sqrt{20} + 3\sqrt{8}$

4) $3\sqrt[3]{24} + 3\sqrt[3]{162} + 2\sqrt[3]{3}$

5) $\sqrt{10}\left(\sqrt{10} + \sqrt{2}\right)$

6) $\left(2\sqrt{2} + \sqrt{3}\right)\left(\sqrt{2} + \sqrt{3}\right)$

7) $\left(\sqrt{2}+\sqrt{3}\right)^2$

8) $\left(\sqrt{5}+\sqrt{3}\right)\left(\sqrt{5}-\sqrt{3}\right)$

9) $\left(3\sqrt{5}-5\right)\left(3\sqrt{5}+5\right)$

10) $\dfrac{5}{-3-\sqrt{3}}$

11) $\dfrac{3}{3\sqrt{5}-4\sqrt{3}}$

12) $\dfrac{3-\sqrt{5}}{\sqrt{3}+\sqrt{2}}$

Radical Addition / Binomial Operations

Date_____ Period____

Simplify.

1) $-\sqrt{2} - \sqrt{2}$

$-2\sqrt{2}$

2) $-3\sqrt{6} - 2\sqrt{2} - 3\sqrt{2}$

$-3\sqrt{6} - 5\sqrt{2}$

3) $3\sqrt{5} - 3\sqrt{20} + 3\sqrt{8}$

$-3\sqrt{5} + 6\sqrt{2}$

4) $3\sqrt[3]{24} + 3\sqrt[3]{162} + 2\sqrt[3]{3}$

$8\sqrt[3]{3} + 9\sqrt[3]{6}$

5) $\sqrt{10}\left(\sqrt{10} + \sqrt{2}\right)$

$10 + 2\sqrt{5}$

6) $\left(2\sqrt{2} + \sqrt{3}\right)\left(\sqrt{2} + \sqrt{3}\right)$

$7 + 3\sqrt{6}$

7) $\left(\sqrt{2}+\sqrt{3}\right)^2$

$5+2\sqrt{6}$

8) $\left(\sqrt{5}+\sqrt{3}\right)\left(\sqrt{5}-\sqrt{3}\right)$

16

9) $\left(3\sqrt{5}-5\right)\left(3\sqrt{5}+5\right)$

20

10) $\dfrac{5}{-3-\sqrt{3}}$

$\dfrac{-15+5\sqrt{3}}{6}$

11) $\dfrac{3}{3\sqrt{5}-4\sqrt{3}}$

$-3\sqrt{5}-4\sqrt{3}$

12) $\dfrac{3-\sqrt{5}}{\sqrt{3}+\sqrt{2}}$

$3\sqrt{3}-3\sqrt{2}-\sqrt{15}+\sqrt{10}$