Name:_____
                                                          Block:_____

Chapter 5
Radicals Assignment

Show *all* work to receive full marks.

1. Change to a mixed radical

   a) $\sqrt{27}$ b) $\sqrt{54x^5y^5}$ c) $2\sqrt{147}$ d) $4\sqrt[3]{32}$

2. Change to an entire radical

   a) $4\sqrt{10}$ b) $4x\sqrt[3]{5}$ c) $2x^3\sqrt{3x}$

3. Simplify

   a) $\sqrt{6}\times\sqrt{8}$ b) $5\sqrt{20xy}\times2\sqrt{5x}$ c) $-8\sqrt{3}\times5\sqrt{6}$

   d) $2\sqrt{24}\times-3\sqrt{18}$ e) $2\sqrt{6}\times7\sqrt{8}\times5\sqrt{2}$

4. Simplify, leave no radicals in the denominator.

a) $\dfrac{\sqrt{56}}{\sqrt{8}}$

b) $\dfrac{\sqrt{48}}{\sqrt{6}}$

c) $\dfrac{3\sqrt{20}}{4\sqrt{12}}$

d) $\dfrac{3\sqrt{60}}{2\sqrt{27}}$

5. Add/Subtract

a) $5\sqrt{2} - 16\sqrt{2} + 29\sqrt{2}$

b) $\sqrt{20} - \sqrt{45}$

c) $\sqrt{80} + \sqrt{45} - \sqrt{125}$

d) $5\sqrt{28} - 3\sqrt{63} + 2\sqrt{112}$

e) $2\sqrt[3]{24} + 3\sqrt[3]{81}$

6. Expand

a) $\sqrt{5}\left(\sqrt{11} - \sqrt{3}\right)$

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

c) $\left(\sqrt{7} - 3\right)\left(4\sqrt{7} + 1\right)$

d) $\left(3\sqrt{5} + 2\sqrt{3}\right)^2$

7. Rationalize the denominator.

a) $\dfrac{5}{\sqrt{7} + \sqrt{3}}$

b) $\dfrac{3\sqrt{3} + 1}{\sqrt{2} + 3}$

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

8. Solve the radical expression.

a) $-8 + \sqrt{5a - 5} = -3$

b) $\sqrt{7c - 54} - c = -6$

c) $\sqrt{3x + 1} = \sqrt{x + 5}$

d) $\sqrt{c+7} + 1 = 5 - \sqrt{2c - 3}$