Mathematics 101 Worksheet 6.6,6.7

<u>Problems</u>

1) Simplify the radicals.

a) $\sqrt{\dfrac{3y^5}{25x^6}}$ answer: $\dfrac{y^2}{5x^3}\sqrt{3y}$

b) $\sqrt[3]{\dfrac{-16x^7y^6}{z^9}}$ answer: $\dfrac{-2x^2y^2}{z^3}\sqrt[3]{2x}$

c) $\dfrac{\sqrt[3]{3t^{14}}}{\sqrt[3]{192t^2}}$ answer: $\dfrac{t^4}{4}$

d) $\dfrac{\sqrt[3]{4}}{\sqrt[5]{4}}$ answer: $\sqrt[15]{16}$

2) Rationalize the denominator.

a) $\sqrt{\dfrac{5}{3w}}$ answer: $\dfrac{\sqrt{15w}}{3w}$

b) $\dfrac{-2}{\sqrt[3]{2x}}$ answer: $-\dfrac{\sqrt[3]{4x^2}}{x}$

c) $\dfrac{-6}{\sqrt{7}-\sqrt{5}}$ answer: $-3(\sqrt{7}+\sqrt{5})$

d) $\dfrac{w-7}{\sqrt{w}-\sqrt{7}}$ answer: $\sqrt{w}+\sqrt{7}$

3) Solve the radical equations, if possible.

a) $\sqrt{2y} = 8$ answer: $y = 32$

b) $\sqrt[3]{2w - 3} + 5 = 2$ answer: $w = -12$

c) $\sqrt[4]{p + 12} - \sqrt[4]{5p - 16} = 0$ answer: $p = 7$

d) $\sqrt{8x + 1} = -\sqrt{x - 13}$ answer: no solution

e) $\sqrt{2m^2 + 4} - \sqrt{9m} = 0$ answer: $m = \frac{1}{2}, 4$