Name: _____
Date: _____
Class: _____

Algebra
Unit 9
HW 9-4

1) Solve: $x^2 - 7 = 42$

$+7 \quad +7$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

2) Solve: $2x^2 - 92 = 104 + x^2$

$-x^2 \quad +92 \quad +92 - x^2$

$\sqrt{x^2} = \sqrt{196}$

$x = \pm 14$

3) Solve: $2x^3 + 12 = 140$

$-12 \quad -12$

$\frac{2x^3}{2} = \frac{128}{2}$

$\sqrt[3]{x^3} = \sqrt[3]{64}$

$x = 8$

4) Solve: $142 - 2x^3 = 485 - 3x^3$

$-142 \quad +3x^3 \quad -142 \quad +3x^3$

$\sqrt[3]{x^3} = \sqrt[3]{343}$

$x = 7$

5: Solve (answers in simplest radical form): $2x^2 + 25 = 75 + x^2$

$-x^2 \quad -25 \quad -25 - x^2$

$\sqrt{x^2} = \sqrt{50}$

$x = \pm\sqrt{50}$

$\sqrt{25}\sqrt{2}$

$x = \pm 5\sqrt{2}$

6) If a rectangle's length is $8 + 3\sqrt{2}$ and its width is $6 - 2\sqrt{8}$ what would its area and perimeter be in simplest radical form?

$A = lw = (8 + 3\sqrt{2})(6 - 2\sqrt{8})$

$48 - 16\sqrt{8} + 18\sqrt{2} - 6\sqrt{16}$

$48 - 16\sqrt{4}\sqrt{2} + 18\sqrt{2} - 6(4)$

$48 - 16 \cdot 2\sqrt{2} + 18\sqrt{2} - 24$

$48 - 32\sqrt{2} + 18\sqrt{2} - 24$

$24 - 14\sqrt{2}$

7) If a triangle has a base that is $6 + 4\sqrt{3}$ and a height that is $2 + 3\sqrt{6}$, what would it's area be in simplest radical form?

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(6 + 4\sqrt{3})(2 + 3\sqrt{6})$

$= (3 + 2\sqrt{3})(2 + 3\sqrt{6})$

$= 6 + 9\sqrt{6} + 4\sqrt{3} + 6\sqrt{18}$

$6 + 9\sqrt{6} + 4\sqrt{3} + 6\sqrt{9}\sqrt{2}$

$= 6 + 9\sqrt{6} + 4\sqrt{3} + 6 \cdot 3\sqrt{2}$

$= 6 + 9\sqrt{6} + 4\sqrt{3} + 18\sqrt{2}$

(6)

P → sum of sides

$P \rightarrow 2(8 + 3\sqrt{2}) + 2(6 - 2\sqrt{8})$

$= 16 + 6\sqrt{2} + 12 - 4\sqrt{8}$

$= 28 + 6\sqrt{2} - 4\sqrt{4}\sqrt{2}$

$28 + 6\sqrt{2} - 4 \cdot 2\sqrt{2}$

$28 + 6\sqrt{2} - 8\sqrt{2}$

$\boxed{P = 28 - 2\sqrt{2}}$

8) Simplify: $\sqrt{588x^5y^2}$

$\sqrt{4}\sqrt{49}\sqrt{x^4}\sqrt{y^2}\sqrt{3}\sqrt{x}$

$2 \cdot 7 \cdot x^2 \cdot y\sqrt{3x}$

$\boxed{14x^2y\sqrt{3x}}$