

Part I: Simplify [2 points each]

1) $\sqrt{32x^5}$

$$\sqrt{16 \cdot 2 \cdot x^2 \cdot x^2 \cdot x}$$

$$\sqrt{4 \cdot 4 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot x}$$

$$\underline{4x^2\sqrt{2x}}$$

2) $3\sqrt{56y}$

$$3 \cdot \sqrt{7 \cdot 8 \cdot y}$$

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

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

$$\underline{6\sqrt{7y}}$$

Part II: Solve the equation. Box answers. [4 points each]

3) $\sqrt{4k-11} + 15 = 2$

$$(\sqrt{4k-11})^2 = (-13)^2 \quad \text{* Check}$$

$$4k-11 = 169 \quad \sqrt{4(45)-11} + 15 = 2$$

$$4k = 180 \quad \sqrt{169} + 15 = 2$$

$$k = 45 \quad 13 + 15 \neq 2$$

NO Solution

4) $(\sqrt{8x})^2 = x^2$

$$8x = x^2$$

$$x^2 - 8x = 0$$

$$x(x-8) = 0$$

$$x = 0 \quad x = 8$$

solution is $\{0, 8\}$

5) $(\sqrt{51-5y})^2 = (y-11)^2$

$$51-5y = y^2 - 22y + 121$$

$$y^2 - 17y + 70$$

$$(y-10)(y-7)$$

$$y = 10 \quad y = 7$$

$$\sqrt{51-5(10)} = 10 - 11$$

$$\sqrt{1} \neq -1$$

$$\sqrt{51-5(7)} = 7 - 11$$

$$\sqrt{16} \neq -3$$

Extra Credit:

$$-5 = (x+7)^{\frac{1}{2}} - 11$$