

HW 6.3

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1. a) 25 b) $\frac{21}{4}$ c) 85 d) $\frac{13}{36}$ e) no solution

f) -11 g) no solution h) 5, $\frac{7}{4}$ (extraneous) i) no solution

2. -

3. a) -1 b) 5, -2 (extraneous) c) 1 d) 3, 6 (extraneous)

e) 23, -1 (extraneous) f) no solution

4. $\sqrt{x+10} - \frac{6}{\sqrt{x+10}} = 5$

$$x+10 - 6 = 5\sqrt{x+10}$$

$$x^2 + 8x + 16 = 25x + 250$$

$$x^2 - 17x - 234 = 0$$

$$\cancel{(x+9)}(x-26) = 0$$

$$x = 26$$

5. $\sqrt{52+5} - \sqrt{3-32} - 2\sqrt{2} = 0$

$$5z+5 - 2\sqrt{(5z+5)(3-3z)} + 3-3z = 4z$$

$$4z^2 - 3z + 64 = 60 - 60z^2$$

$$16z^2 - 8z + 1 = 0$$

$$(4z-1)^2 = 0$$

$$z = \frac{1}{4}$$

$$6. \quad 1800 + 200 + 2\sqrt{360000} = n$$

$$2000 + 2(600) = n$$

$$n = 3200$$

$$7. \quad \sqrt{x^2+1} + x^2+1 = 89$$

$$x^2+1 = x^4 - 178x^2 + 89^2$$

$$x^4 - 179x^2 + 7920 = 0$$

$$(x^2 - 80)(x^2 - 99) = 0$$

$$x = \pm\sqrt{80}, \pm\sqrt{99}$$

$$x = \pm 4/5$$

8. Same as #4

$$9. \sqrt{40-9x} - 2\sqrt{7-x} = \sqrt{-x}$$

$$40 - 9x = -x + 4\sqrt{x^2 - 7x} + 28 - 4x$$

$$12 - 4x = 4\sqrt{x^2 - 7x}$$

$$x^2 - 6x + 9 = x^2 - 7x$$

$$x = -9$$

$$2x + 5 = -13$$