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SOLUTIONS
BONUS ASSIGNMENT
QUADRATIC EQUATIONS
201-914-DW

P. 149-150.

#5 $9 - 4x^2 = 0$
 $(3+2x)(3-2x) = 0$
 $3+2x=0$ OR $3-2x=0$
 $2x=-3$
 $x=-\frac{3}{2}$ OR $-2x=-3$
 $x=\frac{3}{2}$

$x = \pm \frac{3}{2}$

#7 $x = x^2$
 $x - x^2 = 0$
 $x(1-x) = 0$

$x = 0$ OR 1

#9 $x^2 + 5x = 21 + x$
 $x^2 + 4x - 21 = 0$
 $(x+7)(x-3) = 0$

$x = -7$ OR 3

#11 $4t^2 - 4t + 1 = 0$
 $4t^2 - 2t - 2t + 1 = 0$
 $2t(2t-1) - (2t-1) = 0$
 $(2t-1)(2t-1) = 0$

$t = \frac{1}{2}$

#13 $\frac{w^2}{8} - \frac{w}{2} - 4 = 0$

Multiply by 8

$w^2 - 4w - 32 = 0$
 $(w-8)(w+4) = 0$

$w = 8$ OR -4

#15 $(x-1)(x+5) = 7$
 $x^2 - x + 5x - 5 = 7$
 $x^2 + 4x - 12 = 0$
 $(x+6)(x-2) = 0$

$x = -6$ OR 2

$$\#21 \quad x^2 - 4x - 4 = 0$$

$$x = \frac{4 \pm \sqrt{(-4)^2 - 4(1)(-4)}}{2}$$

$$= \frac{4 \pm \sqrt{32}}{2}$$

$$= \frac{4 \pm \sqrt{16 \cdot 2}}{2}$$

$$= \frac{4 \pm 4\sqrt{2}}{2}$$

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

$$\boxed{x = 2 + 2\sqrt{2} \text{ OR } 2 - 2\sqrt{2}}$$

$$\text{OR } \boxed{-0.83 \text{ OR } 4.83}$$

$$\#23 \quad 2w^2 + w + 1 = 0$$

$$w = \frac{-1 \pm \sqrt{1^2 - 4(2)(1)}}{2(2)}$$

$$= \frac{-1 \pm \sqrt{-7}}{4}$$

$$\boxed{\text{NO SOLUTIONS}}$$

$$\#27 \quad 5x^2 = 2x + 6$$

$$5x^2 - 2x - 6 = 0$$

$$x = \frac{2 \pm \sqrt{(-2)^2 - 4(5)(-6)}}{2(5)}$$

$$= \frac{2 \pm \sqrt{124}}{10}$$

$$= \frac{2 \pm \sqrt{4 \cdot 31}}{10}$$

$$= \frac{2 \pm 2\sqrt{31}}{10}$$

$$= \frac{1 \pm \sqrt{31}}{5}$$

$$\boxed{x = \frac{1 + \sqrt{31}}{5} \text{ OR } \frac{1 - \sqrt{31}}{5}}$$

$$\text{OR } \boxed{x = 1.31 \text{ OR } -0.91}$$

#29

$$y^2 = 7$$

$$y^2 - 7 = 0$$

$$y = \frac{0 \pm \sqrt{0^2 - 4(1)(-7)}}{2}$$

$$= \frac{\pm \sqrt{28}}{2}$$

$$= \frac{\pm \sqrt{4 \cdot 7}}{2}$$

$$= \pm \frac{2\sqrt{7}}{2}$$

$$= \pm \sqrt{7}$$

$$x = \sqrt{7} \text{ OR } -\sqrt{7}$$

$$\text{OR } \pm 2.65$$

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$$\# 33 \quad (x+4)^2 = 25$$

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

$$x^2 + 8x - 9 = 0$$

$$(x+9)(x-1) = 0$$

$$x = -9 \text{ OR } x = 1$$

$$\# 35 \quad (x+8)^2 + 3(x+8) + 2 = 0$$

$$x^2 + 16x + 64 + 3x + 24 + 2 = 0$$

$$x^2 + 19x + 90 = 0$$

$$(x+10)(x+9) = 0$$

$$x = -10 \text{ OR } -9$$