

HW29

plus

$$47. \quad 0 = 2x^2 - x - 15$$

$$0 = (2x-5)(x+3)$$

$$\boxed{x = 5/2} \quad \boxed{x = -3}$$

$$48. \quad x = \frac{+1 \pm \sqrt{1^2 - 4(2)(-28)}}{2(2)}$$

$$x = \frac{1 \pm \sqrt{225}}{4}$$

$$x = \frac{1 \pm 15}{4} \rightarrow \begin{cases} 4 \\ -7/2 \end{cases}$$

$$49. \quad 2 = x^2$$

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

$$50. \quad x^2 = \frac{25}{16}$$

$$\boxed{x = \pm \frac{5}{4}}$$

$$51. \quad x+13 = \pm 5$$

$$x = -13 \pm 5$$

$$\boxed{x = -8}$$

$$\boxed{x = -18}$$

$$52. \quad x-5 = \pm \sqrt{30}$$

$$\boxed{x = 5 \pm \sqrt{30}}$$

$$53. \quad x^2 + 12x + 25 = 0$$

$$(x^2 + 12x + 36) - 36 + 25 = 0$$

$$(x+6)^2 - 11 = 0$$

$$(x+6)^2 = 11$$

$$x+6 = \pm \sqrt{11}$$

$$\boxed{x = -6 \pm \sqrt{11}}$$

$$54. \quad 9x^2 - 12x - 14 = 0$$

$$x = \frac{12 \pm \sqrt{144 - 4(9)(-14)}}{2(9)}$$

$$x = \frac{12 \pm \sqrt{648}}{18}$$

$$x = \frac{12 \pm 9\sqrt{2}}{18}$$

$$\boxed{x = \frac{4 \pm 3\sqrt{2}}{6}}$$

$$55. \quad 0 = 2x^2 + 5x - 27$$

$$x = \frac{-5 \pm \sqrt{25 - 4(2)(-27)}}{4}$$

$$\boxed{x = \frac{-5 \pm \sqrt{241}}{4}}$$

$$56. \quad 3(x^2 - x + 1/4) - 3/4 - \frac{80}{4} = 0$$

$$3(x - 1/2)^2 - 83/4 = 0$$

$$(x - 1/2)^2 = \frac{83}{12}$$

$$x - 1/2 = \pm \frac{\sqrt{83}}{2\sqrt{3}} \left(\frac{\sqrt{3}}{\sqrt{3}} \right)$$

$$x - 1/2 = \pm \frac{\sqrt{249}}{6}$$

$$\boxed{x = \frac{1}{2} \pm \frac{\sqrt{249}}{6}}$$

$$58. \quad a) \quad y = -16t^2 + 30t + 5.8$$

$$b) \quad y = -16(1)^2 + 30(1) + 5.8$$
$$y = 19.8 \text{ ft}$$

$$c) \quad 6.2 = -16t^2 + 30t + 5.8$$
$$0 = -16t^2 + 30t - 0.4$$

$$x = \frac{-30 \pm \sqrt{900 - 4(-16)(-0.4)}}{2(-16)}$$

$$x = \frac{-30 \pm \sqrt{874.4}}{-32}$$

$$x = 0.01 \quad \varepsilon \quad \boxed{x = 1.9 \text{ sec}}$$