

HW35

p254 #14-24, 26-28, 49

$$14. \quad 3x - 5 = 6x + 8$$

$$-13 = 3x$$

$$\boxed{-13/3 = x}$$

$$20. \quad x = \frac{-5 \pm \sqrt{25 - 4(3)(-6)}}{2(3)}$$

$$\boxed{x = \frac{-5 \pm \sqrt{97}}{6}}$$

$$15. \quad -x - 3 = 14x - 84$$

$$81 = 15x$$

$$\boxed{81/15 = x}$$

$$21. \quad x = \frac{-9 \pm \sqrt{81 - 4(3)(1)}}{2(3)}$$

$$\boxed{x = \frac{-9 \pm \sqrt{69}}{6}}$$

$$16. \quad 4x + 3 = 10x - 20$$

$$23 = 6x$$

$$\boxed{23/6 = x}$$

$$17. \quad (x-3)(x-1) = 0$$

$$\boxed{x=3} \quad \boxed{x=1}$$

$$22. \quad \frac{1}{2}x^2 = 32$$

$$x^2 = 64$$

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

$$18. \quad -2(x^2 - 4x + 4) + 8 + 12 = 0$$

$$-2(x-2)^2 + 20 = 0$$

$$-2(x-2)^2 = -20$$

$$(x-2)^2 = 10$$

$$x-2 = \pm\sqrt{10}$$

$$\boxed{x = 2 \pm \sqrt{10}}$$

$$23. \quad x^3(x+12) + 4x(x+12) = 0$$

$$(x+12)(x^3 + 4x) = 0$$

$$(x+12)x(x^2 + 4) = 0$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ \boxed{x = -12} & \boxed{x = 0} & x^2 = -4 \\ & & \boxed{x = \pm 2i} \end{array}$$

$$19. \quad x^2 = 24 \left(\frac{3}{2}\right)$$

$$x^2 = 36$$

$$\boxed{x = \pm 6}$$

$$24. \quad 8x(x^2 - 6x + 9) = 0$$

$$8x(x-3)(x-3) = 0$$

$$\boxed{x=3} \quad \boxed{x=0}$$