

HW33

11.  $5x(x^2 + 6x + 9) = 0$

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

$x=0$   $x=-3$

14.  $x^2(x+2) + 3(x+2) = 0$

$(x^2+3)(x+2) = 0$

$x=-2$   $x^2=-3$   
 $x = \pm \sqrt{-3}$

17.  $(x^2-1)(x^2-3) = 0$

$x^2=1$

$x^2=3$

$x = \pm 1$

$x = \pm \sqrt{3}$

18.  $(x^2-4)(x^2+9) = 0$

$x^2=4$

$x^2=-9$

$x = \pm 2$

$x = \pm 3i$

19.  $(4x^2-1)(x^2-4) = 0$

$x^2 = 1/4$

$x^2=4$

$x = \pm 1/2$

$x = \pm 2$

HW34

35.  $\sqrt{3x} = 12$

$3x = 144$

$x = 144/3$

36.  $7\sqrt{x} = 4$

$\sqrt{x} = \frac{4}{7}$

$x = \frac{16}{49}$

44.  $x+5 = x-5$

$0 = -10$   
no solution

37.  $\sqrt{x-10} = 4$

$x-10 = 16$

$x = 26$

41.  $-\sqrt{20-11x} = x-4$

$\sqrt{20-11x} = -x+4$

$20-11x = (-x+4)^2$

$20-11x = x^2 - 4x - 4x + 16$

$0 = x^2 + 3x - 10$

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

$x = -5$   
 $x = 2$

42.  $\sqrt{31-9x} = 5-x$

$31-9x = (5-x)^2$

$31-9x = 25 - 10x + x^2$

$0 = x^2 - x - 6$

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

$x = 3, -2$

43.  $x+1 = 3x+1$

$0 = 2x$

$x = 0$



$$71. 2x - 5 = 11$$

$$2x = 16$$

$$\boxed{x = 8}$$

$$2x - 5 = -11$$

$$2x = -6$$

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

$$72. 3x + 2 = 7$$

$$3x = 5$$

$$\boxed{x = 5/3}$$

$$3x + 2 = -7$$

$$3x = -9$$

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

$$73. x = x^2 + x - 24$$

$$0 = x^2 - 24$$

$$24 = x^2$$

$$\boxed{\pm 2\sqrt{6} = x}$$

$$x = -(x^2 + x - 24)$$

$$x = -x^2 - x + 24$$

$$x^2 + 2x - 24 = 0$$

$$(x+6)(x-4) = 0$$

$$\boxed{x = -6, 4}$$

$$74. x^2 + 6x = -(3x + 18)$$

$$x^2 + 6x = -3x - 18$$

$$x^2 + 9x + 18 = 0$$

$$x = \frac{-9 \pm \sqrt{81 - 4(1)(18)}}{2(1)}$$

$$x = \frac{-9 \pm 3}{2}$$

$$x = -4/2 = \boxed{-2}$$

$$x = -12/2 = \boxed{-6}$$

$$x^2 + 6x = 3x + 18$$

$$x^2 + 3x - 18 = 0$$

$$(x+6)(x-3) = 0$$

$$\boxed{x = -6}$$
$$x = 3$$

$$109. 37.55 = 40 - \sqrt{0.01x + 1}$$

$$-2.45 = -\sqrt{0.01x + 1}$$

$$2.45 = \sqrt{0.01x + 1}$$

$$6.0025 = 0.01x + 1$$

$$5.0025 = 0.01x$$

$$500.25 = x$$

$$\boxed{\sim 500}$$

$$110. 750 = 800 - \sqrt{0.01x + 1}$$

$$-50 = -\sqrt{0.01x + 1}$$

$$50 = \sqrt{0.01x + 1}$$

$$2500 = 0.01x + 1$$

$$2499 = 0.01x$$

$$\boxed{249,900 = x}$$