

# HW 73

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

2.  $3x^2 - 10x + 3 = 0$   
 $(3x-1)(x-3) = 0$   
 $x = 1/3, x = 3$

3.  $2x^2 - x - 5 = 0$   
 ~~$(2x-5)(x+1)$~~

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(2)(-5)}}{2(2)}$$

$$x = \frac{1 \pm \sqrt{1+40}}{4}$$

$$x = \frac{1 \pm \sqrt{41}}{4}$$

4.  $9x^2 + 6x + 1 = 0$

$$x = \frac{-6 \pm \sqrt{6^2 - 4(9)(1)}}{2(9)}$$

$$x = \frac{-6 \pm \sqrt{0}}{2(9)}$$

$$x = -6/18 = -1/3$$

5.  $3x^2 - 7x + 1 = 0$

$$x = \frac{7 \pm \sqrt{(-7)^2 - 4(3)(1)}}{2(3)}$$

$$x = \frac{7 \pm \sqrt{49-12}}{6}$$

$$x = \frac{7 \pm \sqrt{37}}{6}$$

6.  $x^2 + 4x + 1 = 0$

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

$$x = \frac{-4 \pm \sqrt{16-4}}{2}$$

$$x = \frac{-4 \pm \sqrt{12}}{2}$$

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

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

7.  $12x^2 - 12x - 9 = 0$

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

$$x = \frac{12 \pm \sqrt{144+432}}{24}$$

$$x = \frac{12 \pm \sqrt{576}}{24}$$

$$x = \frac{12 \pm 24}{24}$$

$$x = \frac{36}{24} = \frac{3}{2}$$

$$x = \frac{-12}{24} = -1/2$$

8.  $2x^2 - 6x - 1 = 0$

$$x = \frac{6 \pm \sqrt{(-6)^2 - 4(2)(-1)}}{2(2)}$$

$$x = \frac{6 \pm \sqrt{36+8}}{4}$$

$$x = \frac{6 \pm \sqrt{44}}{4}$$

$$x = \frac{6 \pm 2\sqrt{11}}{4}$$

$$x = \frac{3 \pm \sqrt{11}}{2}$$

9.  $0 = x^2 - 2x - 1$

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

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

$$x = \frac{2 \pm \sqrt{8}}{2}$$

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

$$x = 1 \pm \sqrt{2}$$

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

$$x = \frac{-2 \pm \sqrt{2^2 - 4(3)(-2)}}{2(3)}$$

$$x = \frac{-2 \pm \sqrt{4+24}}{6}$$

$$x = \frac{-2 \pm \sqrt{28}}{6}$$

$$x = \frac{-2 \pm 2\sqrt{7}}{6}$$

$$x = \frac{-1 \pm \sqrt{7}}{3}$$

11.  $x^2 - 8x + 10 = 0$

$$x = \frac{8 \pm \sqrt{(-8)^2 - 4(1)(10)}}{2(1)}$$

$$x = \frac{8 \pm \sqrt{64-40}}{2}$$

$$x = \frac{8 \pm \sqrt{24}}{2}$$

$$x = \frac{8 \pm 2\sqrt{6}}{2}$$

$$x = 4 \pm \sqrt{6}$$

$$12. 0 = 4x^2 + 8x + 1$$

$$x = \frac{-8 \pm \sqrt{8^2 - 4(4)(1)}}{2(4)}$$

$$x = \frac{-8 \pm \sqrt{64 - 16}}{8}$$

$$x = \frac{-8 \pm \sqrt{48}}{8}$$

$$x = \frac{-8 \pm 4\sqrt{3}}{8}$$

$$x = -1 \pm \frac{1}{2}\sqrt{3}$$

$$18. h(x) = (4x-1)(x-2)$$

$$x = 2, x = \frac{1}{4}$$

$$19. g(x) = x^2 + 8x + 16 - 4$$

$$= x^2 + 8x + 12$$

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

$$x = -6, x = -2$$

$$13. b^2 - 4ac$$

$$4^2 - 4(2)(7)$$

$$16 - 56 = -40$$

no real solutions

$$14. x^2 + 6x - 3 = 0$$

$$b^2 - 4(1)(-3)$$

$$36 + 12 = 48$$

2 real solutions

$$15. -4x^2 - 8x - 4 = 0$$

$$(-8)^2 - 4(-4)(-4)$$

$$64 - 64 = 0$$

1 real solution

$$16. f(x) = 3(x^2 - 8x + 16) + 53 - 48$$

$$f(x) = 3(x-4)^2 + 5$$

$$(4, 5)$$

$$17. g(x) = -(x^2 + 6x + 9) - 13 - \frac{-9}{-}$$

$$g(x) = -(x+3)^2 - 4$$

$$g(x) = -(x+3)^2 - 4$$

$$(-3, -4)$$