

# Practice problems week 4

- a)  $y = 2(x+1)(x+5)$   $x = -1, -5$   
 b)  $y = -2(x+1)(x-3)$   $x = -1, +3$   
 c)  $y = (x-.5)(x-2.5)$   $x = +.5, +2.5$   
 d)  $y = x(x+4)$   $x = 0, -4$

## factoring

1.  $x^2 + 8x + 7$   
 $(x+1)(x+7)$   
 $x = -1, -7$

2.  $x^2 - 11x + 10$   
 $(x-10)(x-1)$   
 $x = +10, +1$

3.  $x^2 - 10x + 24$   
 $(x-6)(x-4)$   
 $x = +6, +4$

4.  $x^2 - x - 2$   
 $(x-2)(x+1)$   
 $x = +2, -1$

5.  $2x^2 + 12x + 10$   
 $2(x^2 + 6x + 5)$   
 $2(x+5)(x+1)$   
 $x = -5, -1$

6.  $2x^2 + 15x + 7$   
 $x^2 + 15x + 14$   
 $(x+14)(x+1)$   
 $(2x+14)(2x+1)$   
 $2(x+7)(2x+1)$   
 $(x+7)(2x+1)$   
 $x = -7, -\frac{1}{2}$

7.  $3x^2 - 5x - 12$   
 $x^2 - 5x - 36$   
 $(x-9)(x+5)$   
 $(3x-9)(3x+5)$   
 $3(x-3)(3x+5)$   
 $(x-3)(3x+5)$   
 $x = 3, -\frac{5}{3}$

8.  $9x^2 + 11x + 2$   
 $x^2 + 11x + 18$   
 $(x+9)(x+2)$   
 $(9x+9)(9x+2)$   
 $9(x+1)(9x+2)$   
 $(x+1)(9x+2)$   
 $x = -1, -\frac{2}{9}$

Quadratic formula

1.  $2x^2 + 8x - 5 = 0$   
 $x = \frac{-8 \pm \sqrt{8^2 - 4(2)(-5)}}{2(2)}$   
 $x = \frac{-8 \pm \sqrt{104}}{4}$   
 $x = \frac{-8 + \sqrt{104}}{4}$   $x = \frac{-8 - \sqrt{104}}{4}$   
 $x = .55$   $x = -4.55$

9.  $7x^2 - 22x + 3$   
 $x^2 - 22x + 21$   
 $(x-21)(x-1)$   
 $(7x-21)(7x-1)$   
 $7(x-3)(7x-1)$   
 $(x-3)(7x-1)$   
 $x = +3, +\frac{1}{7}$

10.  $18x^2 - 9x - 2$   
 $x^2 - 9x - 36$   
 $(x-12)(x+3)$   
 $(18x-12)(18x+3)$   
 $6(3x-2)3(6x+1)$   
 $(3x-2)(6x+1)$   
 $x = +\frac{2}{3}, -\frac{1}{6}$

2.  $5x^2 - 10x + 3 = 0$   
 $x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(5)(3)}}{2(5)}$   
 $= \frac{10 \pm \sqrt{40}}{10}$   
 $x = \frac{10 + \sqrt{40}}{10}$   $x = \frac{10 - \sqrt{40}}{10}$   
 $x = .816$   $x = .183$