

**Homework: Solving Quadratic Equations by Factoring**

Use the Zero-Product Property to solve each equation by factoring.

1.  $(x + 7)(4x - 5) = 0$

$x+7=0$      $4x-5=0$

$x = -7$      $4x = 5$   
 $x = 5/4$

2.  $(8y - 3)(4y + 1) = 0$

$8y-3=0$      $4y+1=0$

$8y=3$      $4y=-1$   
 $y = 3/8$      $y = -1/4$

3.  $x^2 + x - 20 = 0$

$(x+5)(x-4) = 0$

$x+5=0$      $x-4=0$

$x = -5$      $x = 4$

4.  $3x^2 - 17x + 10 = 0$      $\frac{30}{-15, -2}$

$(3x^2 - 15x) + (-2x + 10) = 0$

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

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

$x-5=0$      $3x-2=0$

$x = 5$      $3x = 2$      $x = 2/3$

5.  $4a^2 - 49 = 0$

$(2a-7)(2a+7) = 0$

$2a-7=0$      $2a+7=0$

$2a=7$      $2a=-7$

$a = 7/2$      $a = -7/2$

6.  $h^2 + 10h = -21$

$h^2 + 10h + 21 = 0$

$(h+7)(h+3) = 0$

$h+7=0$      $h+3=0$

$h = -7$      $h = -3$

7.  $3c^2 + 8c = 3$      $\frac{-9}{9, -1}$

$3c^2 + 8c - 3 = 0$

$(3c^2 + 9c) + (-1c - 3) = 0$

$3c(c+3) - 1(c+3) = 0$

$(c+3)(3c-1) = 0$

$c+3=0$      $3c-1=0$

$c = -3$      $3c = 1$      $c = 1/3$

8.  $5m^2 = 17m - 6$      $\frac{30}{-15, -2}$      $9x^2 = 25$

$5m^2 - 17m + 6 = 0$

$(5m^2 - 15m) + (-2m + 6) = 0$

$5m(m-3) - 2(m-3) = 0$

$(m-3)(5m-2) = 0$

$m-3=0$      $5m-2=0$

$m = 3$      $5m = 2$      $m = 2/5$

$x^2 - 25 = 0$

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

$x-5=0$      $x+5=0$

$x = 5$      $x = -5$

**Challenge:** Now it's time for you to be the teacher! Write a quadratic equation with the given solutions.

• 3 and 5     $x=3$      $x=5$   
 $(x-3)(x-5)$   
 $x^2 - 5x - 3x + 15$

$x^2 - 8x + 15$

• -3 and 2     $x=-3$      $x=2$   
 $(x+3)(x-2)$   
 $x^2 - 2x + 3x - 6$

$x^2 + x - 6$