

# HOMWORK: FACTORING

NAME: \_\_\_\_\_

DAY 13 DUE: \_\_\_\_\_

Factor each expression. If not possible, write PRIME.

1.  $x^2 + x - 6$

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

$$\begin{array}{r} 6 \\ 1 \ 6 \\ -2+3 \end{array}$$

2.  $x^2 - 8x + 15$

$$(x-3)(x-5)$$

$$\begin{array}{r} 15 \\ 1 \ 15 \\ -3-5 \end{array}$$

3.  $x^2 + 8x + 15$

$$(x+3)(x+5)$$

$$\begin{array}{r} 15 \\ 1 \ 15 \\ +3+5 \end{array}$$

4.  $9x^2 - 100y^2$

$$(3x-10y)(3x+10y)$$

5.  $6x^2 + 5x + 1$

$$\frac{6x^2 + 2x + 3x + 1}{2x \quad 1}$$
$$2x(3x+1) + 1(3x+1)$$

$$(3x+1)(2x+1)$$

$$\begin{array}{r} 6 \\ 1 \ 6 \\ +2+3 \end{array}$$

6.  $3x^2 + 7x + 4$

$$\frac{3x^2 + 3x + 4x + 4}{3x \quad 4}$$
$$3x(x+1) + 4(x+1)$$

$$(x+1)(3x+4)$$

$$\begin{array}{r} 12 \\ 1 \ 12 \\ 2 \ 6 \\ +3+4 \end{array}$$

7.  $64x^2 + 24x + 9$

$$(8x+3)^2$$

Check:  $(8x+3)(8x+3)$   
 $64x^2 + 24x + 24x + 9$   
 $64x^2 + 48x + 9 \checkmark$

8.  $7x^2 + 49x$

$$\frac{7x^2 + 49x}{7x}$$
$$7x(x+7)$$

Solve.

9.  $\frac{25x^2 - x}{x} = 0$

$$x(25x - 1) = 0$$

$$x = 0 \quad \begin{array}{r} 25x - 1 = 0 \\ +1 \quad +1 \\ \hline 25x = 1 \\ \frac{25x}{25} = \frac{1}{25} \end{array}$$

$$x = 0, \frac{1}{25}$$

$$x = \frac{1}{25}$$

10.  $\frac{-x^2 + 5x - 4}{-1} = \frac{0}{-1}$

$$x^2 - 5x + 4 = 0$$

$$(x-1)(x-4) = 0$$

$$x-1=0 \quad x-4=0 \\ x=1 \quad x=4$$

$$\frac{4}{-1-4} \\ \frac{4}{2 \quad 2}$$

$$x = 1, 4$$

CHOOSE ONE OF THE FOLLOWING TO COMPLETE =)

11. Write and solve an equation that involves factoring a difference of squares.

$$9x^2 - 25 = 0$$

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

$$3x-5=0 \quad 3x+5=0$$

$$x = \frac{5}{3} \quad x = -\frac{5}{3}$$

$$x = \pm \frac{5}{3}$$

12. Write and solve an equation that involves factoring a trinomial (A = 1).

$$x^2 + 10x + 9 = 0$$

$$(x+9)(x+1) = 0$$

$$x+9=0 \quad x+1=0$$

$$x = -9 \quad x = -1$$

$$x = -9, -1$$

13. Write and solve an equation that involves factoring a trinomial (A ≠ 1).

$$10x^2 + 13x - 3 = 0$$

$$\frac{10x^2 - 2x + 15x - 3}{2x \quad 3} = 0$$

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

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

$$5x-1=0 \quad 2x+3=0 \\ x = \frac{1}{5} \quad x = -\frac{3}{2}$$

$$\frac{30}{1 \quad 30} \\ -2+15 \\ 3 \quad 10 \\ 5 \quad 6$$

$$x = \frac{1}{5}, -\frac{3}{2}$$