

# Factoring GCF and Trinomials

Advanced Algebra - Polynomials  
Assignment # \_\_\_\_\_

Name \_\_\_\_\_

Multiply.

1.  $6x(2x + 1)$

2.  $(x + 4)(x + 9)$

3.  $(x - 2)(x - 7)$

4.  $(y + 3)(y - 8)$

5.  $(a - 2)(a + 6)$

6.  $(k + 7)(k - 7)$

7.  $(c + 10)(c - 4)$

8.  $(2x + 5)(2x - 9)$

9.  $(4x - 3)(4x + 3)$

Factor the GCF.

10.  $5x + 10$

11.  $4x^2 + 6x - 10$

12.  $3x - 12x^2$

Factor each trinomial.

13.  $x^2 + 7x + 10$

14.  $y^2 - 9y - 10$

15.  $a^2 + 7a - 8$

16.  $g^2 - g - 6$

17.  $x^2 - 13x - 48$

18.  $a^2 + a - 20$

19.  $x^2 - 8x + 12$

20.  $a^2 + 2a - 63$

21.  $y^2 - 2y - 35$

22.  $2x^2 - 9x + 4$

23.  $3x^2 - 7x - 6$

24.  $2a^2 - 5a - 3$

25.  $4y^2 - 5y - 6$

26.  $12c^2 - 7c + 1$

27.  $10y^2 + 19y + 6$

Each binomial below is called a *Difference of 2 Squares*.

*General Form:*  $a^2 - b^2 = (a + b)(a - b)$

*Examples:*  $x^2 - 25 = (x + 5)(x - 5)$

$y^2 - 36 = (y + 6)(y - 6)$

$36a^2 - 25 = (6a + 5)(6a - 5)$

Factor each binomial.

28.  $x^2 - 81$

29.  $t^2 - 49$

30.  $y^2 - 100$

31.  $25a^2 - 16$

32.  $64x^2 - 25$

33.  $4y^2 - 81$

# Factoring GCF, Trinomials

Advanced Algebra - Polynomials  
Assignment # \_\_\_\_\_

Name

Key

Multiply.

1.  $6x(2x + 1)$

$$12x^2 + 6x$$

2.  $(x + 4)(x + 9)$

$$x^2 + 13x + 36$$

3.  $(x - 2)(x - 7)$

$$x^2 - 9x + 14$$

4.  $(y + 3)(y - 8)$

$$y^2 - 5y - 24$$

5.  $(a - 2)(a + 6)$

$$a^2 + 4a - 12$$

6.  $(k + 7)(k - 7)$

$$k^2 - 49$$

7.  $(c + 10)(c - 4)$

$$c^2 + 6c - 40$$

8.  $(2x + 5)(2x - 9)$

$$4x^2 - 8x - 45$$

9.  $(4x - 3)(4x + 3)$

$$16x^2 - 9$$

Factor the GCF.

10.  $5x + 10$

$$5(x + 2)$$

11.  $4x^2 + 6x - 10$

$$2(2x^2 + 3x - 5)$$

$$\boxed{2(2x + 5)(x - 1)}$$

$$\begin{array}{r} -10 \\ 5 \times -2 \\ \hline 3 \end{array}$$

12.  $3x - 12x^2$

$$3x(1 - 4x)$$

Factor each trinomial.

13.  $x^2 + 7x + 10$

$$(x + 5)(x + 2)$$

14.  $y^2 - 9y - 10$

$$(y - 10)(y + 1)$$

15.  $a^2 + 7a - 8$

$$(a + 8)(a - 1)$$

16.  $g^2 - g - 6$

$$(g - 3)(g + 2)$$

17.  $x^2 - 13x - 48$

$$(x - 16)(x + 3)$$

18.  $a^2 + a - 20$

$$(a + 5)(a - 4)$$

19.  $x^2 - 8x + 12$

$(x-6)(x-2)$

20.  $a^2 + 2a - 63$

$(a+9)(a-7)$

21.  $y^2 - 2y - 35$

$(y-7)(y+5)$

22.  $2x^2 - 9x + 4$

$2x^2 - 8x - 1x + 4$   
 $2x(x-4) - 1(x-4)$   
 $(2x-1)(x-4)$

23.  $3x^2 - 7x - 6$

$3x^2 - 9x + 2x - 6$   
 $3x(x-3) + 2(x-3)$   
 $(3x+2)(x-3)$

24.  $2a^2 - 5a - 3$

$2a^2 - 6a + a - 3$   
 $2a(a-3) + 1(a-3)$   
 $(2a+1)(a-3)$

25.  $4y^2 - 5y - 6$

$4y^2 - 8y + 3y - 6$   
 $4y(y-2) + 3(y-2)$   
 $(4y+3)(y-2)$

26.  $12c^2 - 7c + 1$

$12c^2 - 4c - 3c + 1$   
 $4c(3c-1) - 1(3c-1)$   
 $(4c-1)(3c-1)$

27.  $10y^2 + 19y + 6$

$10y^2 + 15y + 4y + 6$   
 $5y(2y+3) + 2(2y+3)$   
 $(2y+3)(5y+2)$

Each binomial below is called a *Difference of 2 Squares*.

General Form:  $a^2 - b^2 = (a+b)(a-b)$

Examples:  $x^2 - 25 = (x+5)(x-5)$

$y^2 - 36 = (y+6)(y-6)$

$36a^2 - 25 = (6a+5)(6a-5)$

Factor each binomial.

28.  $x^2 - 81$

$(x-9)(x+9)$

29.  $t^2 - 49$

$(t-7)(t+7)$

30.  $y^2 - 100$

$(y-10)(y+10)$

31.  $25a^2 - 16$

$(5a-4)(5a+4)$

32.  $64x^2 - 25$

$(8x-5)(8x+5)$

33.  $4y^2 - 81$

$(2y-9)(2y+9)$