

# GCF FACTORING

Factor the common factor out of each expression.

1)  $9 + 8b^2$

2)  $x - 5$

3)  $45x^2 - 25$

4)  $1 + 2n^2$

5)  $56 - 35p$

6)  $50x - 80y$

7)  $7ab - 35a^2b$

8)  $27x^2y^5 - 72x^3y^2$

9)  $-3a^2b + 6a^3b^2$

10)  $8x^3y^2 + 4x^3$

11)  $-5x^2 - 5x^3 - 15x^4$

12)  $-32n^9 + 32n^6 + 40n^5$

# FACTOR BY GROUPING

Factor each completely.

1)  $40r^3 - 8r^2 - 25r + 5$

2)  $35x^3 - 10x^2 - 56x + 16$

3)  $3n^3 - 2n^2 - 9n + 6$

4)  $14v^3 + 10v^2 - 7v - 5$

5)  $15b^3 + 21b^2 - 35b - 49$

6)  $6x^3 - 48x^2 + 5x - 40$

7)  $3x^3 + 15x^2 + 2x + 10$

8)  $28p^3 + 21p^2 + 20p + 15$

# FACTOR DIFFERENCE OF TWO SQUARES

Factor each completely.

1)  $r^2 - 16$

2)  $x^2 - 9$

3)  $v^2 - 25$

4)  $x^2 - 1$

5)  $p^2 - 4$

6)  $4v^2 - 1$

7)  $9k^2 - 4$

8)  $9a^2 - 1$

9)  $3x^2 - 27$

10)  $5n^2 - 20$

11)  $16x^2 - 36$

12)  $125x^2 + 45y^2$

13)  $18a^2 - 50b^2$

14)  $4m^2 + 64n^2$

# ANSWERS

## GCF Factoring

1. Prime:  $9 + 8b^2$  The GCF is 1
2. Prime:  $x - 5$  The GCF is 1
3.  $5(9x^2 - 5)$
4. Prime:  $1 + 2n^2$  The GCF is 1
5.  $7(8 - 5p)$
6.  $10(5x - 8y)$
7.  $7ab(1 - 5a)$
8.  $9x^2y^2(3y^3 - 8x)$
9.  $-3a^2b(1 - 2ab)$  ; also correct:  $3a^2b(-1 + 2ab)$  or  $3a^2b(2ab - 1)$
10.  $4x^3(2y^2 + 1)$
11.  $-5x^2(1 + x + 3x^2)$  or  $5x^2(3x^2 + x + 1)$
12.  $-8n^5(4n^4 - 4n - 5)$

## Factor by Grouping

1.  $(8r^2 - 5)(5r - 1)$
2.  $(5x^2 - 8)(7x - 2)$
3.  $(n^2 - 3)(3n - 2)$
4.  $(2v^2 - 1)(7v + 5)$
5.  $(3b^2 - 7)(5b + 7)$
6.  $(6x^2 + 5)(x - 8)$
7.  $(3x^2 + 2)(x + 5)$
8.  $(7p^2 + 5)(4p + 3)$

## Factor Difference of Two Squares

1.  $(r - 4)(r + 4)$
2.  $(x - 3)(x + 3)$
3.  $(v - 5)(v + 5)$
4.  $(x - 1)(x + 1)$
5.  $(p - 2)(p + 2)$
6.  $(2v - 1)(2v + 1)$
7.  $(3k - 2)(3k + 2)$
8.  $(3a - 1)(3a + 1)$
9.  $3(x - 3)(x + 3)$
10.  $5(n - 2)(n + 2)$
11.  $4(2x - 3)(2x + 3)$
12.  $5(25x^2 + 9y^2)$
13.  $2(3a - 5b)(3a + 5b)$
14.  $4(m^2 + 16n^2)$