

**Factoring Difference of Squares and Perfect Trinomial Squares**

1. Factor each of the following completely.

a.  $a^2 - b^2$

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

c.  $1 - 4x^2$

d.  $9x^2 - 25y^4$

e.  $16x^4 - 9$

f.  $49x^2y^2 - 64z^2$

g.  $25x^6 - 16y^2$

h.  $100x^2 - 121y^2$

i.  $36x^2 - 49$

j.  $25x^4y^2 + 4z^2$

2. Factor each of the following completely.

a.  $2x^2 - 2y^2$

b.  $3x^2 - 48$

c.  $5x^3y^2 - 125x$

d.  $18x^2 - 288y^2$

e.  $72x^2 - 98y^2$

f.  $7 - 63x^2$

3. Factor each of the following completely.

a.  $(x+3)^2 - 16$

b.  $\frac{x^2}{16} - \frac{y^2}{49}$

c.  $(2x-5)^2 - (x+2)^2$

d.  $144 - (3x-4)^2$

e.  $\frac{4}{9}x^2 - \frac{49}{100}y^2$

4. Factor each of the following completely. Each has more than one type of factoring.

a.  $x^4 + 9x^2 - 10$

b.  $2x^4 - 10x^2 + 8$

c.  $x^4 - 5x^2 - 36$

d.  $3x^8 - 3$

e.  $x^5 - 17x^3 + 16x$

f.  $x^4y^4 - 21x^2y^2 - 100$

g.  $x^2 - 6x + 9 - y^2$

h.  $4x^2 + 28xy + 49y^2 - z^2$

i.  $x^4 - 18x^2 + 81 - 49y^2$

j.  $36x^2 - 60x + 25 - 100y^6$

5. Factor each of the following completely.

a.  $4x^2 - 20x + 25$

b.  $9x^2 + 24x + 16$

c.  $9x^2 - 4x + 1$

d.  $25x^2 + 60xy + 36y^2$

e.  $81x^2 - 18x + 1$

f.  $121x^2y^2 - 176xy + 64$

g.  $49x^2y^2 + 140xy + 100$

h.  $4x^2 - 28xy - 49y^2$

**ANSWERS**

1a.  $(a-b)(a+b)$

1b.  $(2x-3y)(2x+3y)$

1c.  $(1-2x)(1+2x)$

1d.  $(3x-5y^2)(3x+5y^2)$

1e.  $(4x^2-3)(4x^2+3)$

1f.  $(7xy-8z)(7xy+8z)$

1g.  $(5x^3+4y)(5x^3-4y)$

1h.  $(10x-11y)(10x+11y)$

1i.  $(6x-7)(6x+7)$

1j. not factorable

2a.  $2(x+y)(x-y)$

2b.  $3(x+4)(x-4)$

2c.  $5x(xy-5)(xy+5)$

2d.  $18(x-4y)(x+4y)$

2e.  $2(6x-7y)(6x+7y)$

2f.  $7(1-3x)(1+3x)$

3a.  $(x-1)(x+7)$

3b.  $(\frac{x}{4} - \frac{y}{7})(\frac{x}{4} + \frac{y}{7})$

3c.  $3(x-1)(x-7)$

3d.  $(16-3x)(3x+8)$

3e.  $(\frac{2x}{3} - \frac{7y}{10})(\frac{2x}{3} + \frac{7y}{10})$

4a.  $(x^2+10)(x+1)(x-1)$

4b.  $2(x-1)(x+1)(x+2)(x-2)$

4c.  $(x^2+4)(x-3)(x+3)$

4d.  $3(x^4+1)(x^2+1)(x-1)(x+1)$

5a.  $(2x-5)(2x-5)$

4e.  $x(x-4)(x+4)(x+1)(x-1)$

5b.  $(3x+4)(3x+4)$

4f.  $(x^2y^2+4)(xy-5)(xy+5)$

5c. not factorable

4g.  $(x-y-3)(x+y-3)$

5d.  $(5x+6y)(5x+6y)$

4h.  $(2x+7y-z)(2x+7y+z)$

5e.  $(9x-1)(9x-1)$

4i.  $(x^2+7y-9)(x^2-7y-9)$

5f.  $(11xy-8)(11xy-8)$

4j.  $(6x-10y^3-5)(6x+10y^3-5)$

5g.  $(7xy+10)(7xy+10)$

5h. not factorable