

KEY

1. Factor completely. Use the trial and error method.

a.  $2x^2 + 13x + 15$

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

b.  $2x^2 - 9x - 5$

$$(2x+1)(x-5)$$

c.  $8a^3 + 14a^2 + 3a$

$$a(8a^2 + 14a + 3)$$

$$a(4a+1)(2a+3)$$

d.  $4x^3 - 9x^2 - 9x$

$$x(4x^2 - 9x - 9)$$

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

e.  $12x^2 + 17x + 5$

$$(12x+5)(x+1)$$

2. Factor the perfect square trinomial.

a.  $x^2 + 22x + 121$

$$(x+11)^2$$

b.  $x^4 + 4x^2 + 4$

$$(x^2+2)^2$$

f.  $21x^2 - 31x + 10$

$$(21x-10)(x-1)$$

g.  $6x^2 - 13xy + 5y^2$

$$(2x-y)(3x-5y)$$

h.  $16t + 15t^2 - 15$

$$15t^2 + 16t - 15$$

$$(5t-3)(3t+5)$$

i.  $-x^2 + 2x + 24$

$$-(x^2 - 2x - 24)$$

$$-(x-6)(x+4)$$

j.  $m^2 + 20mn + 100n^2$

$$(m+10n)^2$$

d.  $x^2 - 12x + 36$

$$(x-6)^2$$

e.  $16a^2 - 24a + 9$

$$(4a-3)^2$$

c.  $9y^2 + 48y + 64$

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

3. Factor completely.

a.  $2x^2 - 7x - 99$

$$(2x + 11)(x - 9)$$

b.  $40a^2b + 9ab - 9b$

$$b(8a - 3)(5a + 3)$$

$$b(40a^2 + 9a - 9)$$

c.  $y + 8y^2 - 9$   
 $8y^2 + y - 9$

$$(8y + 9)(y - 1)$$

d.  $3a^2b^2 + 12ab + 1$

prime

e.  $3x^2(a + 3)^3 - 28x(a + 3)^3 + 25(a + 3)^3$

$$(a + 3)^3(3x^2 - 28x + 25)$$

$$(a + 3)^3(3x - 25)(x - 1)$$

f.  $24x^2 - 49x + 15$

$$(8x - 3)(3x - 5)$$

g.  $9q^4 - 42q^3 + 99q^2$

$$3q^2(3q^2 - 14q + 33)$$

h.  $-27t + 7t^2 - 4$

$$7t^2 - 27t - 4$$

$$(7t + 1)(t - 4)$$

i.  $-12x^3y^2 + 3x^2y^2 + 15xy^2$

$$-3xy^2(4x^2 - x - 5)$$

$$-3xy^2(4x - 5)(x + 1)$$