

Name: KEY  
Date: \_\_\_\_\_

Factoring Practice Test

**1) Simplify**

a)  $(w + 5)(w + 3)$

$$w^2 + 3w + 5w + 15$$

$$w^2 + 8w + 15$$

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

$$x^2 - 2x - 6x + 12$$

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

c)  $(y + 4)(y - 9)$

$$y^2 - 9y + 4y - 36$$

$$y^2 - 5y - 36$$

d)  $(p + 3)(p - 3)$

$$p^2 - 3p + 3p - 9$$

$$p^2 - 9$$

e)  $(2a + 3)(a - 2)$

$$2a^2 - 4a + 3a - 6$$

$$2a^2 - a - 6$$

f)  $(5 - y)(-3 + 3y)$

$$-15 + 15y + 3y - 3y^2$$

$$-3y^2 + 18y - 15$$

g)  $(x - 1)(x + 2) - (x - 4)(x - 3)$

$$x^2 + 2x - x - 2 - [x^2 - 3x - 4x + 12]$$

$$x^2 + x - 2 - [x^2 - 7x + 12]$$

$$x^2 + x - 2 - x^2 + 7x - 12 = 8x - 14$$

h)  $-3(m + 2)(m - 5)$

$$-3[m^2 - 5m + 2m - 10]$$

$$-3[m^2 - 3m - 10]$$

$$-3m^2 + 9m + 30$$

i)  $(t + 3)(t^2 - t + 6)$

$$t^3 - t^2 + 6t + 3t^2 - 3t + 18$$

$$t^3 + 2t^2 + 3t + 18$$

**2) Factor**

a)  $12r - 20$

$$4(3r - 5)$$

b)  $-10x - 30$

$$-10(x + 3)$$

c)  $8y^2 - 12y - 4$

$$4(2y^2 - 3y - 1)$$

d)  $24x^4y^3z^5 - 28x^3y^4z^3 + 16x^2y^5z^4$

$$4x^2y^3z^3(6x^2z^2 - 7zy + 4y^2z)$$

e)  $x^2 + 8x + 7$

$$(x + 7)(x + 1)$$

f)  $y^2 - 9y - 22$

$$(y - 11)(y + 2)$$

g)  $-w - 12 + w^2$

$$w^2 - w - 12$$

$$(w - 4)(w + 3)$$

h)  $-2t^2 - 10t + 28$

$$-2(t^2 + 5t - 14)$$

$$-2(t + 7)(t - 2)$$

### 3) Factor

a)  $m^2 - 6mn + 9n^2$

$$(m-3n)(m-3n)$$
$$(m-3n)^2$$

b)  $3x^2 + 9xy - 30y^2$

$$3(x^2 + 3xy - 10y^2)$$
$$3(x+5y)(x-2y)$$

c)  $8x - x^2 + 20$

$$-x^2 + 8x + 20$$
$$-1(x^2 - 8x - 20)$$
$$-(x-10)(x+2)$$

d)  $p^2 + 16p + 64$

$$(p+8)(p+8)$$
$$(p+8)^2$$

e)  $-49 + w^2 - 14w$

$$w^2 - 14w - 49$$
$$(w-7)(w-7)$$
$$(w-7)^2$$

f)  $2n^2 - 12n + 18$

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

g)  $y^2 - 1$

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

h)  $w^2 - 9$

$$(w+3)(w-3)$$

i)  $5x^2 + 20$

$$5(x^2 + 4)$$

j)  $8t^2 - 32$

$$8(t^2 - 4)$$
$$8(t+2)(t-2)$$

k)  $4p^2 - 81q^2$

$$(2p+9q)(2p-9q)$$

l)  $-27b^2 + 48a^2$

$$-3(9b^2 - 16a^2)$$
$$-3(3b+4a)(3b-4a)$$