

1. Expand and collect like terms.

(a)  $2(x + 4)(x + 3) - 3(x + 2)(x - 5)$

(b)  $4(x - 2)(x + 3) + 8(x + 4)(x - 1)$

(d)  $5(x - 4)(x - 6) - (x + 2)^2$

(e)  $3(x + 4)(2x + 3) + 2(x - 2)(3x - 4)$

(g)  $2(x - 3)^2 - 5(4x + 3)^2$

(h)  $-4(2x - 3)(3x + 4) - (5x - 6)^2$

1. Expand and collect like terms.

(a)  $2(x+4)(x+3) - 3(x+2)(x-5)$

(b)  $4(x-2)(x+3) + 8(x+4)(x-1)$

$$2(x^2 + 3x + 4x + 12) - 3(x^2 - 5x + 2x - 10)$$

$$4(x^2 + 3x - 2x - 6) + 8(x^2 - 1x + 4x - 4)$$

$$2(x^2 + 7x + 12) - 3(x^2 - 3x - 10)$$

$$4(x^2 + 1x - 6) + 8(x^2 + 3x - 4)$$

$$2x^2 + 14x + 24 - 3x^2 + 9x + 30$$

$$4x^2 + 4x - 24 + 8x^2 + 24x + 32$$

$$-1x^2 + 23x + 54$$

$$-4x^2 - 20x + 8$$

(d)  $5(x-4)(x-6) - (x+2)^2$

(e)  $3(x+4)(2x+3) + 2(x-2)(3x-4)$

$$5(x-4)(x-6) - (x+2)(x+2)$$

$$3(2x^2 + 3x + 8x + 12) + 2(3x^2 - 4x - 6x + 8)$$

$$5(x^2 - 6x - 4x + 24) - (x^2 + 2x + 2x + 4)$$

$$3(2x^2 + 11x + 12) + 2(3x^2 - 10x + 8)$$

$$5(x^2 - 10x + 24) - 1(x^2 + 4x + 4)$$

$$6x^2 + 33x + 36 + 6x^2 - 20x + 16$$

$$5x^2 - 50x + 120 - 1x^2 - 4x - 4$$

$$12x^2 + 13x + 52$$

$$4x^2 - 54x + 116$$

(g)  $2(x-3)^2 - 5(4x+3)^2$

(h)  $-4(2x-3)(3x+4) - (5x-6)^2$

$$2(x-3)(x-3) - 5(4x+3)(4x+3)$$

$$-4(2x-3)(3x+4) - (5x-6)(5x-6)$$

$$2(x^2 - 3x - 3x + 9) - 5(16x^2 + 12x + 12x + 9)$$

$$-4(6x^2 + 8x - 9x - 12) - (25x^2 - 30x - 30x + 36)$$

$$2(x^2 - 6x + 9) - 5(16x^2 + 24x + 9)$$

$$-4(6x^2 - 1x - 12) - (25x^2 - 60x + 36)$$

$$2x^2 - 12x + 18 - 80x^2 - 120x - 45$$

$$-24x^2 + 4x + 48 - 25x^2 + 60x - 36$$

$$-78x^2 - 132x - 27$$

$$-49x^2 + 64x + 12$$