

2.5

$$1) (2a+3b)(2x+y) + (3a+5b)(2x+y) = (2x+y)((2a+3b) + (3a+5b)) = (2x+y)(5a+8b)$$

$$2) (a+b)^2 + x(a+b) = (a+b)((a+b) + x) = (a+b)(a+b+x)$$

$$3) (x-2y)(a-b) - (b-a)(2x+y) = (x-2y)(a-b) + (a-b)(2x+y) = (a-b)((x-2y) + (2x+y)) = (a-b)(3x-y)$$

$$4) (4a-2b)(2x-3y) + (3y-2x)(b-2a) = 2(2a-b)(2x-3y) + (-1)(2x-3y)(-1)(2a-b) = (2a-b)(2x-3y)(2 + (-1) \cdot (-1)) = 3(2a-b)(2x-3y)$$

$$5) 3(2a-b)(4x-5) - (2x+1)(b-2a) = 3(2a-b)(4x-5) + (2x+1)(2a-b) = (2a-b)(3(4x-5) + (2x+1)) = (2a-b)(14x-14) = 14(2a-b)(x-1)$$

$$6) a(a+b) - b(a+b) + (a+b)^2 = (a+b)(a-b + (a+b)) = 2a(a+b)$$

$$7) a^2(x-1)(a+b) + a^3(1-x) = a^2(x-1)(a+b) - a^3(x-1) = a^2(x-1)((a+b) - a) = a^2b(x-1)$$

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