

Ch 9.3
Multiplying Binomials

+ FOILING

■ Multiply the monos using First, Outer, Inner, Last.

~ Remember: mult. the coefficients & add the exponents w/ same bases.

F L F L

Ex 1. $(3x+4)(2x+5)$

O I I O

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

$$6x^2 + 15x + 8x + 20 \quad \text{Simplify}$$

$$6x^2 + 23x + 20$$

F L F L

Ex 2. $(4x+2)(3x-6)$

O I I O

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

$$12x^2 - 24x + 6x - 12 \quad \text{Simplify}$$

$$12x^2 - 18x - 12$$

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Try Some

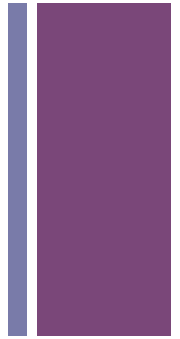
Simply each product.

1. $(5m+2)(8m-1)$

2. $(9a-8)(7a+4)$

3. $(2y-3)(y+2)$

4. $(2b-4)(3b-5)$

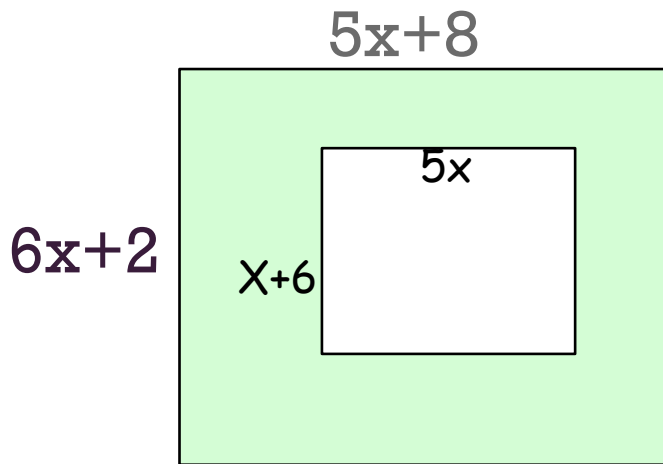


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Try This

Find the area of the shaded region.

Hint: Find the 2 areas, then subtract the non-shaded area from the shaded area.



+ Multiplying a Trinomial & a Binomial

- Separate the binomial into 2 monomials. Multiply each mono by each term of the tri. (Be careful of signs.)
- Combine like terms (add/subt coeff., do not chg exponents!)

Ex 1. $(6n-8)(2n^2+n+7) = 6n(2n^2+n+7) - 8(2n^2+n+7)$
 $= 12n^3 + 6n^2 + 42n - 16n^2 - 8n - 56$
 $= 12n^3 - 10n^2 + 34n - 56$

Ex 2. $(-2b+3)(4b^2-5b+9) = -2b(4b^2-5b+9) + 3(4b^2-5b+9)$
 $= -8b^3 + 10b^2 - 18b + 12b^2 - 15b + 27$
 $= -8b^3 + 22b^2 - 33b + 27$

+ Try Some

Simplify.

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

2. $(6q^2 + q + 1)(8q-4)$

3. $(-5p-1)(9p^3 + p^2 - 3p)$

4. $(3y+6)(4y^5 + 2y^3 - 8y)$

