

Ch 6-5 Multiplying Polynomials

EX: Pg 422-426

1A $(5x^2)(4x^3)$

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

C $(\frac{1}{2}a^3b)(a^2c^2)(6b^2)$

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

B $2x^2y(3x - y)$

C $4a(a^2b + 2b^2)$

* EX $(x+3)(x+2)$

* 3A $(x+2)(x-b)$

* B $(x+b)^2$

* C $(3a^2 - b)(a^2 - 2b)$

* } binomial times binomial

EX $(5x+3)(2x^2+10x-6)$

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

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

C $(x-2)^3$

D $(2x+3)(x^2-6x+5)$

$$\textcircled{1} \textcircled{A} (5x^2)(4x^3) =$$

$$\boxed{20x^5}$$

$$\textcircled{B} (-3x^3y^2)(4xy^5)$$

$$\boxed{-12x^4y^7}$$

$$\textcircled{C} \left(\frac{1}{2}a^3b\right)(a^2c^2)(6b^2)$$

$$\boxed{3a^5b^3c^2}$$

$$\textcircled{2} \textcircled{a} 5(2x^2 + x + 4)$$

$$\boxed{10x^2 + 5x + 20}$$

$$\textcircled{b} 2x^2y(3x - y)$$

$$\boxed{6x^3y - 2x^2y^2}$$

$$\textcircled{c} 4a(a^2b + 2b^2)$$

$$\boxed{4a^3b + 8ab^2}$$

↑
quartic binomial.

EX $(x+3)(x+2)$

HORIZONTAL Form

$$x^2 + 2x + 3x + 6$$

$$x^2 + 5x + 6$$

VERTICAL Form

$$x^2 + 2x$$

$$3x + 6$$

$$x^2 + 5x + 6$$

3A $(x+2)(x-b)$

$$x^2 - xb + 2x - 2b$$

3b $(x+b)^2$

$$(x+b)(x+b)$$

$$x^2 + bx + bx + b^2$$

$$x^2 + 2bx + b^2$$

3c $(3a^2 - b)(a^2 - 2b)$

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

$$3a^4 - 7a^2b + 2b^2$$

Ex $(5x + 3)(2x^2 + 10x - 6)$

$$10x^3 + 50x^2 - 30x + 6x^2 + 30x - 18$$

$$10x^3 + 56x^2 - 18$$

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

$$x^3 - 5x^2 + 4x + 2x^2 - 10x + 8$$

$$x^3 - 3x^2 - 6x + 8$$

$$\textcircled{4b} \quad (3x-4)(-2x^3+5x-6)$$

$$-6x^4 + 15x^2 - 18x - 20x + 8x^3 + 24$$

$$\boxed{-6x^4 + 8x^3 + 15x^2 - 38x + 24}$$

$$\textcircled{4c} \quad (x-2)^3$$

$$(x-2)(x-2)(x-2)$$

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

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

$$x^3 - 4x^2 + 4x$$

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

$$\boxed{x^3 - 6x^2 + 12x - 8}$$

ex

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

Diagram illustrating the FOIL method for multiplying two binomials. The first binomial is $(x+5)$ and the second is $(2x-6)$. Arrows indicate the following steps:

- FIRST**: x multiplied by $2x$ (top arrow)
- OUTER**: x multiplied by -6 (top arrow)
- INNER**: 5 multiplied by $2x$ (bottom arrow)
- LAST**: 5 multiplied by -6 (bottom arrow)

FOIL
 F
 O
 I
 L

$$2x^2 - 6x$$

$$+ 10x - 30$$

$$\boxed{2x^2 + 4x - 30}$$
