

Multiplying Polynomials

Determine the product of the polynomials using the Distributive Property.

$$\begin{array}{l}
 1) \quad \overbrace{6(7x-8)} \\
 \quad \quad \downarrow \quad \downarrow \\
 \quad \quad 6(7x) + 6(-8) \\
 \quad \quad 42x - 48
 \end{array}$$

$$2) \quad 6x(2x + 4)$$

$$3) \quad 5a(2a + 1)$$

$$4) \quad 2(8r + 5)$$

$$5) \quad (4r + 4)(2r + 3)$$

$$6) \quad (7x + 5)(x - 4)$$

Determine the product using one of the following methods: FOIL, Distributive Property or Multiplication Tables.

$$7) \quad (x - 5)(x - 6)$$

$$8) \quad (a + 6)(4a + 3)$$

FOIL

$$\begin{array}{l}
 x(x) + x(-6) + (-5)(x) + (-5)(-6) \\
 x^2 - 6x - 5x + 30 \\
 x^2 - 11x + 30
 \end{array}$$

Distributive Property

$$\begin{array}{l}
 x(x-6) - 5(x-6) \\
 x^2 - 6x - 5x + 30 \\
 x^2 - 11x + 30
 \end{array}$$

Multiplication Table

•	x	-6
x	x ²	-6x
-5	-5x	+30

$$x^2 - 6x - 5x + 30 = x^2 - 11x + 30$$

9) $(2x + 1)(2x - 5)$

10) $(2a + 3)(6a - 7)$

Determine the product using either the Distributive Property or Multiplication Tables.

11) $8x^3(6x^2 + 8x - 7)$

12) $3x^4(3x^2 - 8x + 1)$

Distributive Property

$$8x^3(6x^2) + 8x^3(8x) + 8x^3(-7)$$

$$48x^5 + 64x^4 - 56x^3$$

Multiplication Table

	$6x^2$	$8x$	-7
$8x^3$	$48x^5$	$64x^4$	$-56x^3$

$$48x^5 + 64x^4 - 56x^3$$

13) $(b + 2)(2b^2 + 5b + 3)$

14) $(6a - 2)(6a^2 - 8a - 2)$

15) $(8n + 6)(5n^2 + 2n + 4)$

16) $(x - 6)(2x^2 - x + 8)$