

## Multiplying Polynomials

### Multiplying Polynomials:

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

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

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

Ex. 4  $3x(-x^2 + 8x - 2)$

### Multiplying Polynomials:

#### Methods:

1. Horizontal multiplication (FOIL)
2. Box Method

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

FOIL [First, Outer, Inner, Last]	Box Method						
$(x + 2)(x + 3)$	<p style="text-align: center;"><math>x + 2</math></p> <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td style="padding: 5px;"><math>x</math></td><td style="padding: 5px;"></td></tr><tr><td style="padding: 5px;"><math>+</math></td><td style="padding: 5px;"></td></tr><tr><td style="padding: 5px;"><math>3</math></td><td style="padding: 5px;"></td></tr></table> <p>1. Multiply to fill boxes 2. (Add Terms in Box) 3. (Combine like terms)</p>	$x$		$+$		$3$	
$x$							
$+$							
$3$							

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

FOIL [First, Outer, Inner, Last]	Box Method						
$(x - 3)(x^2 + 3x + 2)$	$x - 3$ $x^2$ <table border="1"><tr><td></td><td></td></tr></table> + $3x$ <table border="1"><tr><td></td><td></td></tr></table> + $2$ <table border="1"><tr><td></td><td></td></tr></table>						

### Multiplying Polynomials:

Ex. 7  $(6t - 5)(7t - 5)$

Ex. 8  $(x + 3)(x^2 - 1)$

Ex. 9  $(x - 4)(-x^2 + 7x - 3)$

Ex. 10  $(x + 2)(x^2 + 6x - 1)$

### Multiplying Polynomials: Student Practice

1.  $(x + 1)(x + 1)$

2.  $7x(x - 5)$

3.  $(x + 2)(x + 2)$

4.  $2x(x + 6)$

### Multiplying Polynomials: Student Practice

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

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

7.  $4x^2(x + 2)$

8.  $(4x + 4)(5x - 5)$