MULTIPLYING METHODS: DISTRIBUTIVE PROPERTY

Recognizing Patterns

Below are 4 different expanded expressions. What do they have in common?

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

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

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

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

Verbalizing

Generalize what you observed above. Explain what is going on.

Applying

Use your generalization to multiply: $(x-2)(x^2 + 5x - 3)$.

MULTIPLYING METHODS: BOX METHOD

Recognizing Patterns

Below are 4 different expanded expressions. What do they have in common?

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

	x	$+2$
x	x²	$+2x$
$+3$	$+3x$	$+6$

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

$$(x-2)(x-3)$$

	x	-2
x	x²	$-2x$
-3	$-3x$	$+6$

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

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

	x	$+2$
x	x²	$+2x$
-3	$-3x$	-6

$$x^2 - x - 6$$

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

	x	-2
x	x²	$-2x$
$+3$	$+3x$	-6

$$x^2 + x - 6$$

Verbalizing

Generalize what you observed above. Explain what is going on.

Applying

Use your generalization to multiply: $(x-2)(x^2 + 5x - 3)$.

MULTIPLYING METHODS: VERTICAL (STANDARD) MULTIPLICATION

Recognizing Patterns

Below are 4 different expanded expressions. What do they have in common?

$$(x+2)$$
$$\cdot(x+3)$$
$$\underline{+3x \quad +6}$$
$$\underline{x^2 \quad +2x \quad +0}$$
$$x^2 + 5x + 6$$

$$(x-2)$$
$$\cdot(x-3)$$
$$\underline{-3x \quad +6}$$
$$\underline{x^2 \quad -2x \quad +0}$$
$$x^2 - 5x + 6$$

$$(x+2)$$
$$\cdot(x-3)$$
$$\underline{-3x \quad -6}$$
$$\underline{x^2 \quad +2x \quad +0}$$
$$x^2 - x + 6$$

$$(x-2)$$
$$\cdot(x+3)$$
$$\underline{+3x \quad -6}$$
$$\underline{x^2 \quad -2x \quad +0}$$
$$x^2 + x + 6$$

Verbalizing

Generalize what you observed above. Explain what is going on.
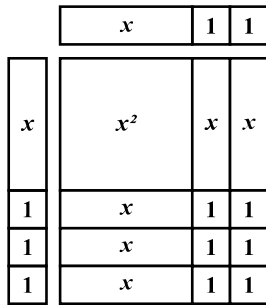
Applying

Use your generalization to multiply: $(x-2)(x^2 + 5x - 3)$.

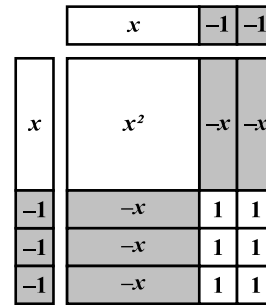# MULTIPLYING METHODS: GEOMETRIC AREA (ALGEBRA TILES)

Recognizing Patterns

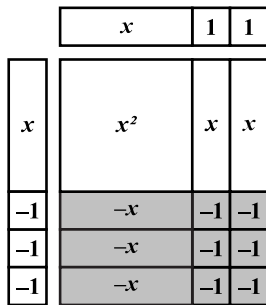Below are 4 different expanded expressions. What do they have in common?
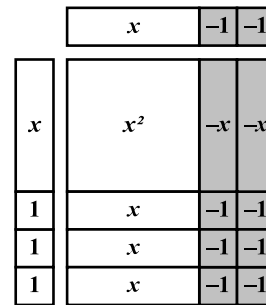
$$(x+2)(x+3)$$

	x	1	1
x	x^2	x	x
1	x	1	1
1	x	1	1
1	x	1	1

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

$$(x-2)(x-3)$$

	x	−1	−1
x	x^2	$-x$	$-x$
−1	$-x$	1	1
−1	$-x$	1	1
−1	$-x$	1	1

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

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

	x	1	1
x	x^2	x	x
−1	$-x$	−1	−1
−1	$-x$	−1	−1
−1	$-x$	−1	−1

$$x^2 - x - 6$$

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

	x	−1	−1
x	x^2	$-x$	$-x$
1	x	−1	−1
1	x	−1	−1
1	x	−1	−1

$$x^2 + x - 6$$

Verbalizing

Generalize what you observed above. Explain what is going on.

Applying

Use your generalization to multiply: $(x-2)(x^2 + 5x - 3)$.