

## What's Going On?

**Checking In**

Skill-testing question

**Minds on**

Find the Area

**Action!**

The Distributive Property

**Consolidation**

Exit Card

**Learning Goal - I will be able to apply the distributive property.**

# Checking In

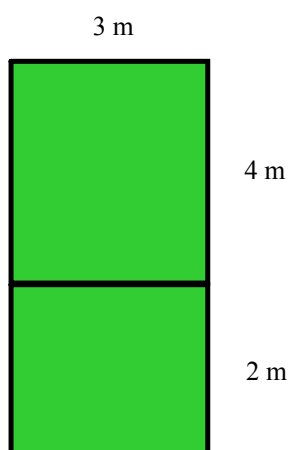
Simplify. **COPY THE QUESTION**

$$\begin{aligned} & (2x^2 + 3x - 5) - (x^2 - 2x + 4) \\ & = \{2x^2 + 3x - 5\} + \{-x^2 + 2x - 4\} \\ & = \underbrace{2x^2}_{\text{red}} + \underbrace{3x}_{\text{green}} - \underbrace{5}_{\text{black}} + \underbrace{(-x^2)}_{\text{red}} + \underbrace{2x}_{\text{green}} - \underbrace{4}_{\text{black}} \\ & = 2x^2 - x^2 + 3x + 2x - 5 - 4 \\ & = 1x^2 + 5x - 9 \end{aligned}$$

**Minds on**

## Find the Area

Determine the area of the lawn (show your steps!!!!):



$$\begin{aligned} A &= l \times w \\ 3 \times 4 + 3 \times 2 \\ 3 \times (4 + 2) \end{aligned}$$

## Minds on

What's the Pattern?

$$3(2x + 2) = 6x + 6$$

$$2(\underline{2x - 3}) = 4x - 6$$

$$3(-x - 1) = -3x - 3$$

$$-2(1 - 2x) = -2 + 4x$$

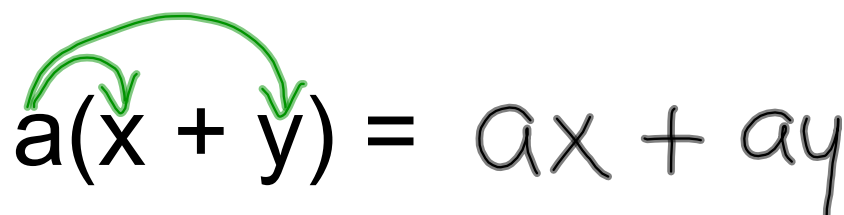
$$x(x - 3) = x^2 - 3x$$

$$-2x(x + 6) = \underline{-2x^2 - 12x}$$

**Action!**

## The Distributive Property

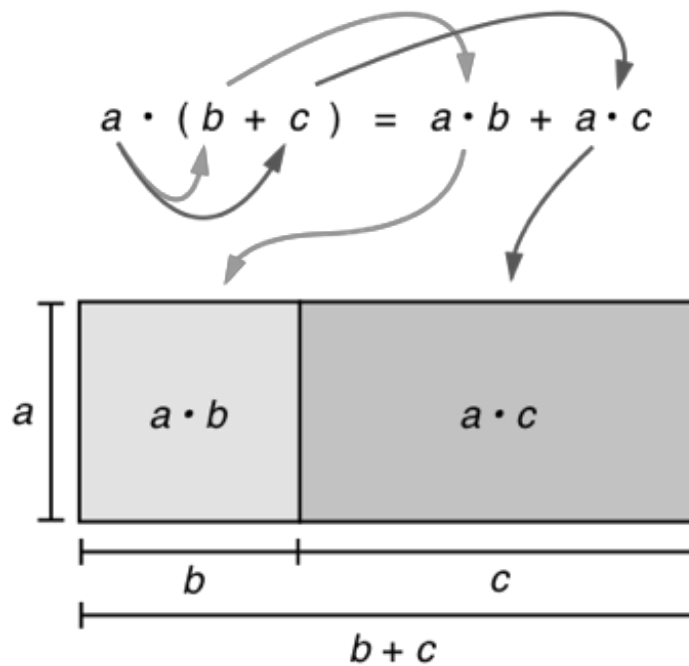
When distributing, multiply the monomial by each term in the polynomial.


$$a(x + y) = ax + ay$$

Careful! If  $a$  is negative, it will change the signs of  $x$  and  $y$ .

**Action!**

Ways to visualize the distributive rule:



Example:  $3x(5x - 7)$

	$5x$	$-7$
$3x$	$(3x)(5x)$	$(3x)(-7)$

Example:  $8(-3x - 2)$

$$8(-3x - 2)$$

## Action!

# The Distributive Property

When distributing, multiply the monomial by each term in the polynomial.

## Simplify

$$\begin{aligned}
 & 2(4x - 3) - 3(2x - 5) \\
 &= 2(4x) + (2)(-3) + (-3)(2x) + (-3)(-5) \\
 &= 8x + (-6) + (-6x) + (15) \\
 &= \underline{8x} - \underline{6} - \underline{6x} + \underline{15} \\
 &= 8x - 6x - 6 + 15 \\
 &= 2x + 9
 \end{aligned}$$

## Simplify

$$\begin{aligned} & \boxed{-5x}(2x + 1) + x(\underline{3} + 4x) \\ & = (-5x)(2x) + (-5x)(1) + x(3) + x(4x) \\ & = \underline{-10x^2} + \underline{(-5x)} + \underline{3x} + \underline{4x^2} \\ & = -10x^2 + 4x^2 + (-5x) + 3x \\ & = -6x^2 - 2x \end{aligned}$$



## Consolidation

# Changing signs with $(-1)$

Compare:

$$\underline{(x + 3)} - \underline{(7 - 2x)}$$

$\rightarrow -7 + 2x$

$$\underline{(x + 3)} + \underline{(-1)}(\underline{7 - 2x})$$

$\boxed{-7 + 2x}$

When we change signs to subtract a polynomial, we're actually multiplying the entire polynomial by  $(-1)$ . When each term is multiplied by  $(-1)$ , its sign changes.

## Consolidation

## Exit Card

Simplify

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

$$= -6x + 3 - 2x + 14$$

$$= -6x - 2x + 3 + 14$$

$$= -8x + 17$$

Arrows  
= multiplication