

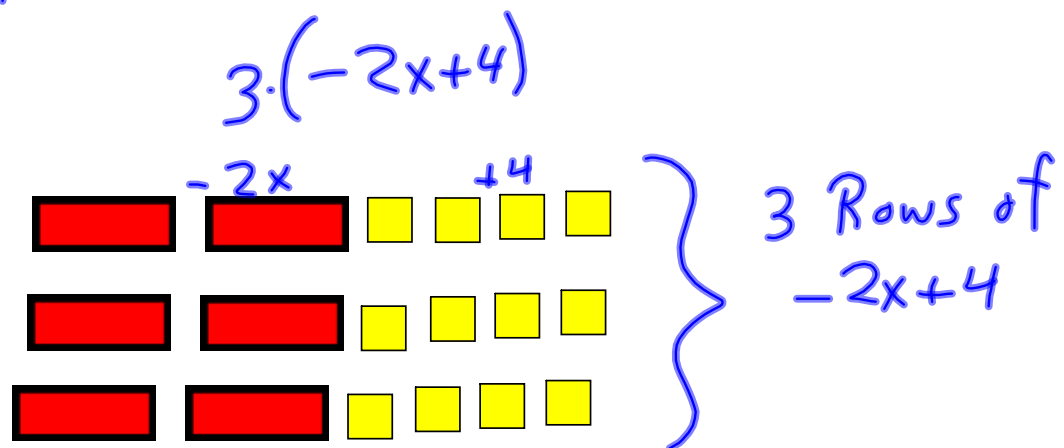
Section 5.5: Multiplying and Dividing Polynomials by a constant number

2 Methods for Multiplying with & Without Tiles

Method #1: Multiplying with Tiles:

- (1) Model the polynomial given
- (2) Repeat the model based on the constant #
- (3) Write the polynomial for all tiles modeled.

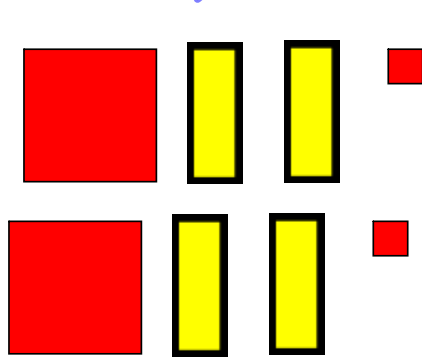
← Example #1: Determine the product:



Ans) $-6x + 12$

Example #2: Determine the product:
 $-2(-x^2 + 2x - 1)$

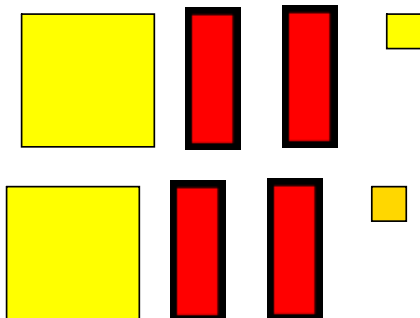
- Note:
- Model the polynomial
 - Make 2 rows
 - Change all the colors.



Because the constant number is negative, change all tile colors (Red \rightarrow Yellow, Yellow \rightarrow Red)



oo



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

Method #2: Multiplying Without Tiles:

* Multiply each term of the polynomial by the constant number using the Distributive Property.

Determine the product of each:

$$\begin{aligned} \text{(ex1)} \quad & 3(2x^2 - 3x + 5) \\ & = 6x^2 - 9x + 15 \end{aligned}$$

$$\begin{aligned} \text{(ex2)} \quad & -11(-5w + 10) \\ & = 55w - 110 \end{aligned}$$

Questions:

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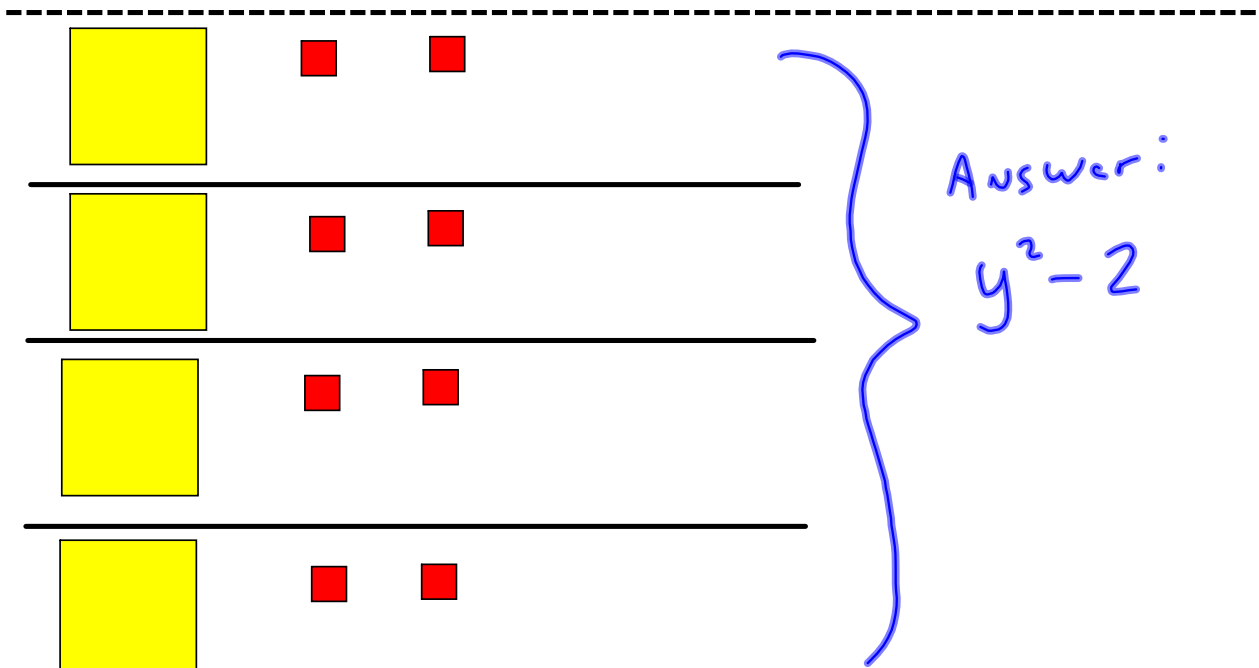
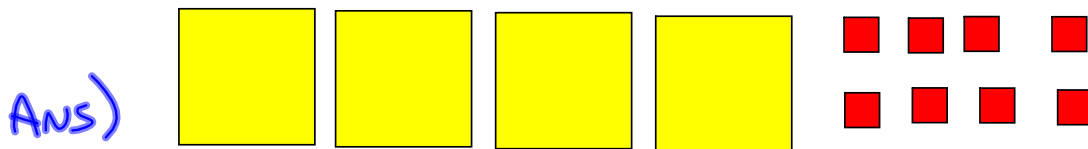
#3, 5A, 11, 15

Dividing Polynomials by a constant number:

Method #1: With Tiles

- (1) Model the polynomial.
- (2) Rearrange the model into rows equal to the constant number.
- (3) The tiles in one row represents the answer or quotient.

Example #1: Determine the quotient: $\frac{4y^2 - 8}{4}$ ← # of rows



Method 2: Without Tiles

- (1) Write the fraction into separate fractions using the constant number as the denominator.
- (2) Simplify

Example #1: Divide the following:

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

$$\text{Ans) } \frac{12x^2}{-3} + \frac{-6x}{-3} + \frac{3}{-3}$$

$$= -4x^2 + 2x - 1$$

Exempl. #2: Determine the quotient:
 $(-15x^2 + 10x - 5) \div 5$

$$(ANS) \quad \frac{-15x^2 + 10x - 5}{5}$$

$$= \frac{-15x^2}{5} + \frac{10x}{5} + \frac{-5}{5}$$

$$= -3x^2 + 2x - 1$$

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