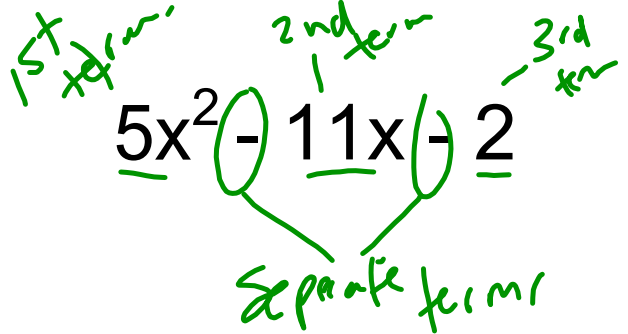


Write a monomial that is NOT a polynomial.



- Positive exponent
- Whole number.

Monomial? Binomial? or Trinomial?



Simplify :

$$\cancel{11x^4} - \cancel{12} - x^2 - \cancel{2x^4} + \cancel{2x^4} - 6x^2 + 1$$

$$11x^4 - 2x^4 + 2x^4 - 12 + 1 - x^2 - 6x^2$$

$$11x^4 - 2x^4 + 2x^4 - 1x^2 - 6x^2 - 12 + 1$$

$$\boxed{11x^4 - 7x^2 - 11}$$

Like terms
Same variable
Same degree.

Section 5.3 Adding Polynomials

$$\textcircled{+ -} \rightarrow (-)$$

Determine the sum of $3x^2 + 2x + 4$ and $-5x^2 + 3x - 5$

1st trinomial \rightarrow 2nd trinomial \rightarrow

Add
Coefficients

When we write the sum of two polynomials, we write each polynomial in brackets:

$$(\cancel{3x^2} + \cancel{2x} + \cancel{4}) + (-\cancel{5x^2} + \cancel{3x} - 5)$$

$$\cancel{3x^2} + (-\cancel{5x^2}) + \cancel{2x} + \cancel{3x} + \cancel{4} - 5$$

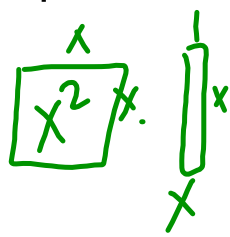
$$3x^2 - 5x^2 + 2x + 3x + 4 - 5$$

$$\textcircled{-2x^2 + 5x - 1}$$

Now, to solve...

We can solve the question with or without algebra tiles.

Tiles



No Tiles

Display: $3x^2 + 2x + 4$



1st
2nd

Display: $-5x^2 + 3x - 5$



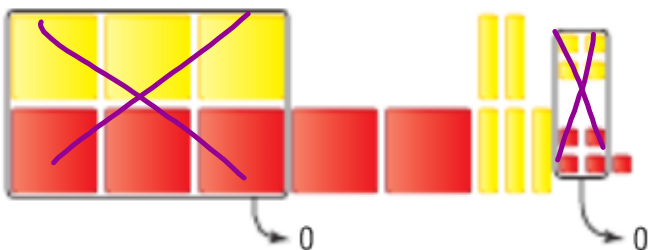
Combine the displays.



Group like tiles.



Remove zero pairs.



The remaining tiles represent

$-2x^2 + 5x - 1$.

The sum is:

$(3x^2 + 2x + 4) + (-5x^2 + 3x - 5)$

+ - -> (-)

This is written as:

$3x^2 + 2x + 4 - 5x^2 + 3x - 5$

Group like terms:

$3x^2 - 5x^2 + 2x + 3x + 4 - 5$

Combine like terms:

$-2x^2 + 5x - 1$

Adding Polynomials Without Tiles

$$\text{Add: } (5c - 11) + (-4c^2 + c + 7)$$

We can add the polynomials by adding the coefficients of the like terms.
We can do this in two different ways:

$$1 + 2 = 3$$

Method 1:

Add horizontally:

$$\begin{aligned}
 & (5c - 11) + (-4c^2 + c + 7) \\
 & = \cancel{+}5c - \cancel{11} - 4c^2 + c + 7 \\
 & = -4c^2 + 5c + c - 11 + 7 \\
 & = -4c^2 + 6c - 4
 \end{aligned}$$

① Remove the brackets.
 ② Group like terms.
 ③ Combine like terms by adding their coefficients
 (remember that c has a coefficient of 1!)

Method 2:

Add vertically. Line up the like terms, then add their coefficients.

$$\begin{array}{r}
 \text{1st expression} \rightarrow 5c - 11 \\
 + \text{2nd.} \rightarrow -4c^2 + c + 7 \\
 \hline
 -4c^2 + 6c - 4
 \end{array}$$

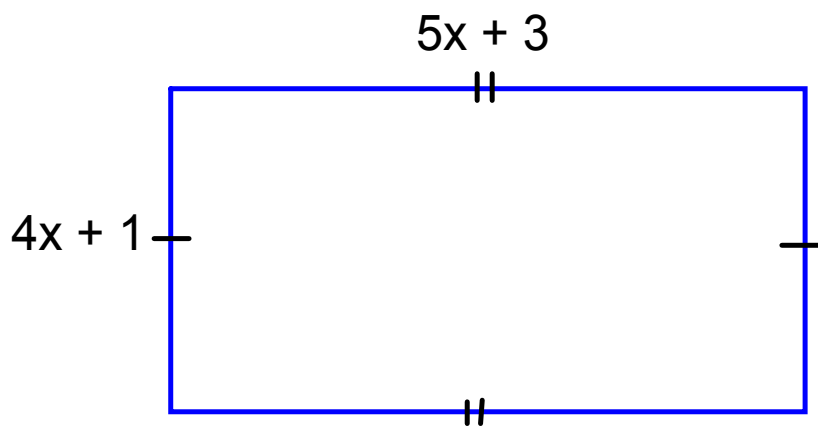
← Binomial
← Trinomial



So, $(5c - 11) + (-4c^2 + c + 7) = -4c^2 + 6c - 4$

Determining a Polynomial for the perimeter of a rectangle

- a) Write a polynomial for the perimeter of this rectangle.
Simplify the polynomial.



Perimeter = the sum of all sides

=

=

=

=

The perimeter is

Adding Polynomials in Two Variables

$$\text{Add: } (3s^2 + s - 4c - 5cs + 2s^2) + (-5c^2 + 3cs + 6c - 4s + 7c^2)$$

Remove Brackets.

$$= 3s^2 + s - 4c - 5cs + 2s^2 - 5c^2 + 3cs + 6c - 4s + 7c^2$$

Group like terms.

$$= 3s^2 + 2s^2 + s - 4s - 4c + 6c - 5cs + 3cs - 5c^2 + 7c^2$$

Combine like terms.

$$= 5s^2 - 3s + 2c - 2cs + 2c^2$$

Practice Questions

p.228 - 230

3a,c

5a,c

6a,c vertical method.

$$\begin{array}{r} \boxed{}\boxed{} \\ (2x^2 + 2x + 1) + (2x^2 + 1x + 1) \end{array}$$

