



Section 5.2

Like Terms & Unlike Terms

What do the following pairs of integers all have in common?

-1, 1

-2, 2

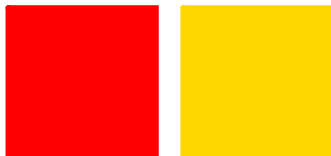
-100, 100

-15, 15

Hint:

What happens when you add them?

What do you think happens when a " x^2 " tile and a " $-x^2$ " tile combine?



The form a zero pair

TILES

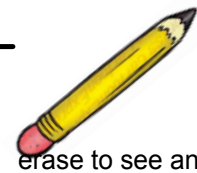
Like Terms:

are terms that can be represented by algebra tiles with the same shape and size (Don't worry about colour → signs)

Here is a collection of tiles, lets group them together into "like terms".



Answer to the above



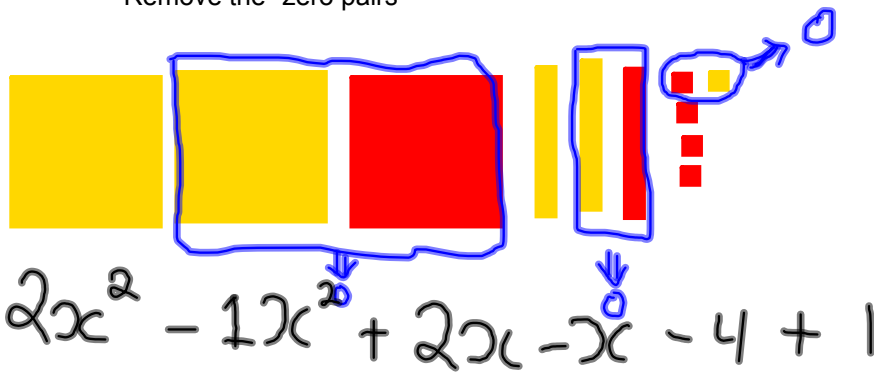
erase to see answer

Always collect like terms

Once you collected like terms you have to simplify the tiles

HOW????

Remove the "zero pairs"



Copy what is left over



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



Polynomial Expressions



Like terms are $-3x^2$ and $4x^2$ (same letter with the same numerical exponent)

$$x^2y^3, -13x^2y^3, 12x^4, -101x^4$$

Unlike Terms are $-x^2$ and x (either different letters and/or different numerical exponent)

$$x^3y^2, x^2y^3, x^2, y^2, -41x^5, -41x^4$$

Simplified Form

*fewest algebra tiles possible

*contains only one term of each degree and no terms with a zero coefficient

Always simplify any polynomial by grouping like terms.

Simplify the following polynomial

$$\text{Example: } \underbrace{-3x}_{\text{blue}} + \underbrace{2x^2}_{\text{blue}} - \underbrace{7}_{\text{red}} + \underbrace{10x}_{\text{red}} + \underbrace{5}_{\text{red}} - \underbrace{4x^2}_{\text{blue}}$$

Step 1) Group like terms

*Always start with the largest exponent *

Step 2) Combine like terms

$$\text{Step 1) } +2x^2 - 4x^2 - 3x + 10x - 7 + 5$$

$$\text{Step 2) } -2x^2 + 7x - 2$$

Warm Up

Name the coefficients, variable, and degree of each polynomial. Identify the constant term if there is one.

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

b) $7b - 8$

c) $12c^2 + 2$

d) $12m$

e) 18

f) $3 + 5x^2 - 8x$

From the list, which terms are like $-2n^2$?

$3n$, $-n^2$, -2 , $4n$, $2n^2$, -2 , 3 , $5n^2$

12. Simplify each polynomial

a) $2m + 4 - 3m - 8$

b) $4 - 5x + 6x - 2$

c) $3g - 6 - 2g + 9$

d) $-5 + 1 + h - 4h$

e) $-6n - 5n - 4 - 7$

f) $3s - 4s - 5 - 6$

a) $2m - 3m + 4 - 8$

$$= -1m - 4$$

b) $-5x + 6x + 4 - 2$

$$= 1x + 2$$

c) $3g - 2g - 6 + 9$

$$= g + 3$$

d) $h - 4h - 5 + 1$

$$= -3h - 4$$

14. Simplify each polynomial.

a) $3x^2 + 5y - 2x^2 - 1 - y$

b) $pq - 1 - p^2 + 5p - 5pq - 2p$

c) $5x^2 + 3xy - 2y - x^2 - 7x + 4xy$

d) $3r^2 - rs + 5s + r^2 - 2rs - 4s$

e) $4gh + 7 - 2g^2 - 3gh - 11 + 6g$

f) $-5s + st - 4s^2 - 12st + 10s - 2s^2$

a) $3x^2 - 2x^2 + 5y - y - 1$

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

c) $5x^2 - x^2 + 3xy + 4xy - 2y - 7x$

$$= 4x^2 + 7xy - 2y - 7x$$

e) $-2g^2 + 4gh - 3gh + 6g + 7 - 11$

$$= -2g^2 + 1gh + 6g - 4$$

Perimeter - is the distance around an object
- to calculate you add the length of each side

Write a polynomial to represent the perimeter of each rectangle.



Example 2) Write a polynomial to represent the perimeter of each rectangle.

