Combining and Simplifying Algebraic Terms

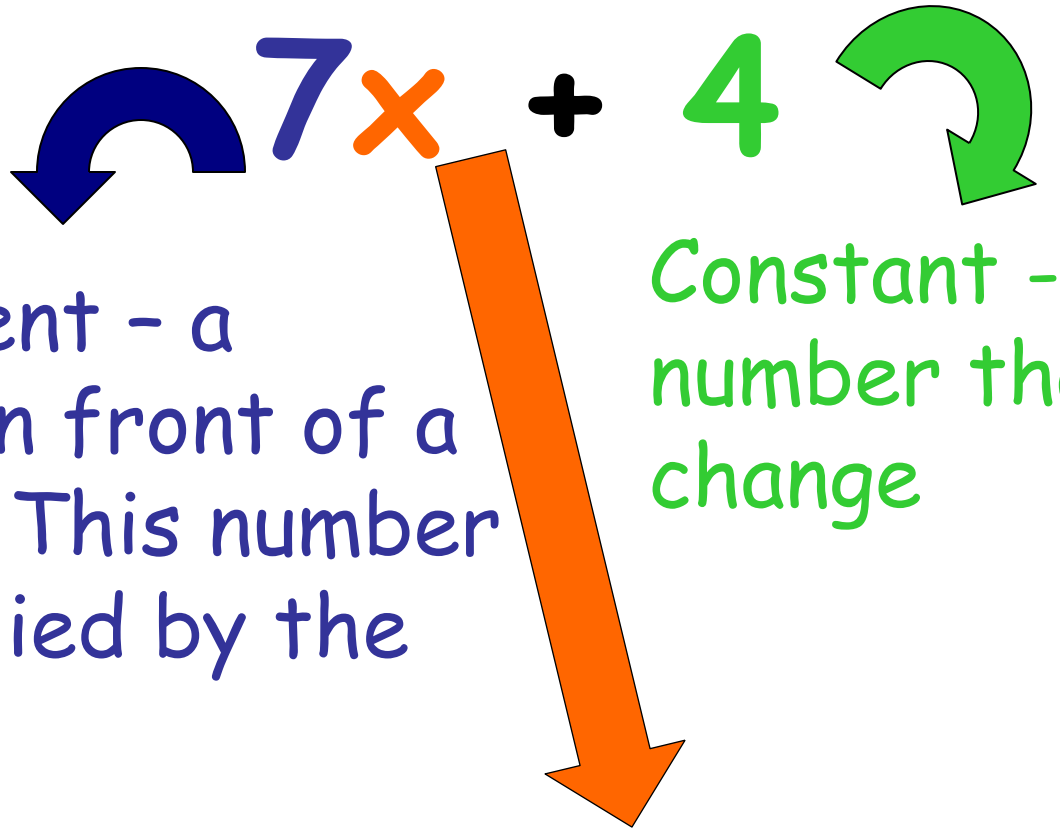
Warm Up

Simplify each expression

1. $a^2+2b+2a^2+b+2c$

2. $5x+6x^2+3y+2x+8y+9x^2$

3. $g+h+2g+5h+8g^2$



- Coefficient – a number in front of a variable. This number is multiplied by the variable.

Constant - a number that cannot change

Variable – a letter or symbol that represents an unknown number.

$x\ y\ x^2\ a\ r\ b^2$

- Variables are similar to species of animals.
- Different species of animals can't mate and produce (fertile) off spring.

A dog and cat can't mate and produce a dat.

$x\ y\ x^2\ a\ r\ b^2$

To be able to combine like terms, the terms must:

1. Be the same variable
2. Have the same exponent

$3b + 4c + 2b = 5b + 4c$

$x^2 - 3c + 3x^2 = 4x^2 - 3c$

z=  p =  g = 

Combine the like terms

A. 4z + 6 g + 2p + 3z + 5p + 1g

4z + 3z = 7z

2p + 5p = 7p

6g + 1g = 7g

Combine all the like terms in a new algebraic expression:

7z +7p + 7g

c=  p =  g = 

Combine the like terms

A. 10c + 4 g + 5p + 15c – 12 p - 3g

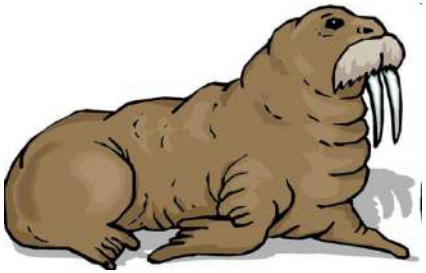
10c + 15 c = 25c

5p +(-12p) = -7p

4g + (-3g) = 1g

Combine all the like terms in a new algebraic expression:

25c + (-7p) +1g

s=  p =  w = 

Combine the like terms

A. -4s – 6w + 8p + 12s – 10 p + 13w

-4s + 12s = 8s

8p + (-10p) = -2p

-6w + 13w = 7w

Combine all the like terms in a new algebraic expression:

8s + (-2p) + 7w

z=  b=  x= 

- Use the distributive property and combine the like terms
- 3(4z + 5x + 6b + 3x)

Combine 5x + 3x = 8x and rewrite the algebraic expression.

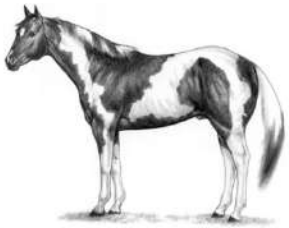
- 3(4z + 8x + 6b)

3(4z) = 3x4 = 12z

3(8x) = 3X8 = 24x

3(6) = 18b

12z + 24x + 18b

X =  X^2=  y = 

Combine the like terms

$5x + 7x^2 - y + 4x - 15x^2 + 4y + x^2$

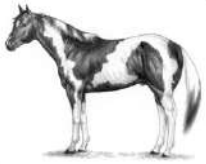
$5x + 4x = 9x$

$7x^2 + (-15x^2) + x^2 = -7x^2$

$-y + 4y = 3y$

Combine all the like terms in a new algebraic expression: $9x + (-7x^2) + 3y$

Or $9x - 7x^2 + 3y$

X =  X^2=  y =  y^2=  p= 

Combine the like terms:

5x y^2 $4x^2$ 6y 3p 8x $-9y^2$ -3y 2x

$5x + 8x + 2x = 15x$

$y^2 + (-9y^2) = -8y^2$

$6y + (-3y) = 3y$

Combine all the like terms in a new algebraic expression:

$15x - 8y^2 + 3y + 4x^2 + 3p$