5. Combining LikeTerms

Now that you are comfortable with combining numbers of different signs, we are going to add variables to the mix. We do it the same way as we do numbers, but when combining we need to make sure the variables attached to the numbers are the same.

$3x-6x$ Here the variables match, so we can combine the numbers
$-3x$ which are referred to as coefficients.

When we have terms that have different variables, we only combine those that match.

$4x-8xy+14y-94x-21xy$

$4x-8xy+14y-94x-21xy$ We can see which ones are combinable.

$-90x-29xy+14y$ This is all we can do with this expression.

If we multiply $x \bullet x = x^1 \bullet x^1 = x^{1+1} = x^2$ We add the exponents.

So $x \bullet x^2 = x^1 \bullet x^2 = x^{1+2} = x^3$

The distributive property is often used in these steps.

$9x(x-3)$ First we multiply the 9x by each term in the
$9x^2-27x$ parenthesis. Now, neither of these terms are combinable.

Sometimes we have a few steps to do before we can combine.

$4(x+2y)-x(3-y)+2y(9x-7y)$

$4x+8y-3x+xy+18xy-14y^2$

$4x+8y-3x+xy+18xy-14y^2$

$x+19xy+8y-14y^2$