Solution Guide for Chapter 9

Here are the solutions for the "Doing the Math" exercises in *Kiss My Math*!

DTM from p.127

2. $5 - g + 2h + 2g - h$

First, let's write the subtraction as "adding negatives", and write in the sneaky "-1" coefficients:

$5 + (-1g) + 2h + 2g + (-1h)$

Okay, let's start doodling! We only see two kinds of variable terms here, *g* and *h*, so we'll need two kinds of underlines. For *g* terms, we'll use this, and for *h* terms, we'll use this: $5 + (\underline{-1g}) + \underline{2h} + \underline{2g} + (\underline{-1h})$

Combining g terms, we get: $-1g + 2g = 1g$

Combining h terms, we get: $2h + (-1h) = 1h$

Our expression becomes: $5 + 1g + 1h$, or you can also just write: $5 + g + h$.

Answer: **$5 + 1g + 1h$,** or you can write **$5 + g + h$**

3. $6a + 7b + b^2 - 2a + 3b - 7b^2$

First, let's write the subtraction as "adding negatives", and write in the sneaky "1" coefficients: $6a + 7b + 1b^2 + (-2a) + 3b + (-7b^2)$

Now let's see, we have three different kinds of variable terms: *a* terms, *b* terms, and b^2 terms. For the *a* terms, we'll use this, for the *b* terms, we'll use this, and for the b^2 terms, we'll use this style of underlining.

$6a + 7b + 1b^2 + (-2a) + 3b + (-7b^2)$

Combining *a* terms, we get: $6a + (-2a) = 4a$

Combining *b* terms, we get: $7b + 3b = 10b$

Combining b^2 terms, we get: $1b^2 + (-7b^2) = -6b^2$

Putting it all together, we get: $4a + 10b + (-6b^2)$

Answer: $\mathbf{4a + 10b + (-6b^2)}$, or you can write $\mathbf{4a + 10b - 6b^2}$

4. $3x + 3yz - 3xy - 3x - 3zy$ (careful!)

First, let's write the subtraction as "adding negatives":

$3x + 3yz + (-3xy) + (-3x) + (-3zy)$

These x, y, and z's can get confusing looking, so let's make sure to write each term with alphabetically ordered variables – it'll help us make sure we can correctly identify like terms: $3x + 3yz + (-3xy) + (-3x) + (-3yz)$

Just the last one needed to be altered. Okay, we're ready to continue!

Now let's see, we have three different kinds of variable terms: x terms, yz terms, and xy terms, right? For the x terms, we'll use this, for the yz terms, we'll use this, and for the xy terms, we'll use this style of underlining. (you'll see that it's neater to use simpler underline styles for letters that dip below the underlines, like y or g.)

$3x + 3yz + (-3xy) + (-3x) + (-3yz)$

Combining x terms, we get: $3x + (-3x) = 0$. Well that's always nice!

Combining yz terms, we get: $3yz + (-3yz) = 0$. Cool!

Combining xy terms, we get: $-3xy$. Right; there's only one of them; nothing to combine!

So, $3x + 3yz + (-3xy) + (-3x) + (-3zy) = -3xy$

Answer: **$-3xy$**