

May 5 2018

Lauren and Lucas

POLYNOMIALS PROJECT 2018

In this polynomial unit, we had a free choice for our final project. We decided that we were going to make our math project enjoyable, by making it about something we are interested in. We decided that we were going to see if there is any connection between polynomials and music. For example, we could combine notes or frequencies in songs, just like combining like terms in polynomials. We chose a couple songs to put into a frequency generator, to see what we could come up with.

The first song we put into the generator was God's plan, by Drake. When we put the song in, we figured out that the main notes used in the song were D C C Bb Bb A G A A Gf. When we were thinking about how we could find like terms, we looked at the notes' htz.

D: 587 htz C: 523 htz Bb: 932 htz A: 880 htz

With these numbers, we found some like terms within the frequencies. We found that both D and C start with 500, so the like term within those frequencies are 500.

Another way we could combine like terms is with the notes. If we combine the same notes that appear more than once, we could have an equation.

$$D C C Bb Bb A G A A Gf = D + 2C + 2Bb + 3A + G + Gf$$

I combined the like terms, to simplify and reduce the amount of numbers in the final equation.

The next song we put into the generator was Havana by Camila Cabello. The main notes in this song are D C D Eb D C Bb D D Bb Bb G. Again, to find some like terms, we need to take a look at the frequencies. These are the htz:

D: 587 htz C: 523 htz Eb: 622 htz Bb: 932 htz G: 784 htz

Again, we found the same like terms. D and C both start with 500, so when you combine them, the like terms in those frequencies are 500.

If we combine the same notes that appear more than once, we could have an equation.

$$D C D Eb D C Bb D D Bb Bb G = 4D + 2C + 3Bb + Eb + G + Gf$$

I combined the like terms, to simplify and reduce the amount of numbers in the final equation. The reason we couldn't combine G and Gf is because Gf has a different variable, therefore making them unable to combine.

The final song we put into the frequency generator is Over the Rainbow. When we put this song into the generator, we found that there were no like terms to collect. Here are the notes that are most common in the song: C C B G A B C C A G. The frequencies had no like terms.

C: 523 htz B: 987 htz G: 784 htz A: 880 htz

If we combine the same notes that appear more than once, we could have an equation.

$$C C B G A B C C A G = 4C + 2B + 2A$$

I combined the like terms, to simplify and reduce the amount of numbers in the final equation. In this series of notes, I was able to combine all of the notes as like terms.

In the end, like terms can be found anywhere if you look for them. Although you don't know it, learning about polynomials and like terms can help you in the future, wether it's in your future job, or just in everyday life, even going to the grocery store!