

Congrats on finishing off the school year! Here is the Summer HW for Honors Math Analysis. It involves two topics - factoring and graphing.

A) Factoring - you will create five videos that show how to factor each of the five problems shown below.

1. $2x^2 - 8$
2. $x^3 - x$
3. $2x^2 - 4x$
4. $4x^2 + 10x + 4$
5. $36x^2 + 12x - 8$

Here are 2 videos that show two different factoring methods. Thanks to Ms. Fennema for finding them and for suggesting this as the summer hw. :)

[Factoring by Grouping](#)

[Factoring by the Box Method](#)

Your videos MUST use one of the two methods. I am assuming that you use one of these methods already.

Here are the beginning steps to factoring: (include these in your videos)

1. See if you can factor out a greatest common factor.
2. Finish factoring by:
 - noticing that you are already completely factored
 - applying the difference of squares method to factor what is left
 - apply the box or grouping method to finish factoring

In your videos, the math steps should be shown and you need to explain each step that you took to factor the polynomial. You should end up with five separate videos and each one should NOT be longer than 2 minutes long. You do not have to be in your video, but the math work and your voice must be present. Also, note that you are not solving these expressions, just factoring them.

When you have all 5 videos finished, upload them to a folder called HMASummerHW in your google drive and share the folder with me. If you have questions about how to do that, let me know.

B) Graphing - In Algebra 2, we learned about a number of different graphs and it will be helpful if you can identify them easily. They are:

$y = x$ linear, also known as the identity function

$y = x^2$ quadratic

$y = x^3$ cubic

$y = x^{1/2}$ (same as $y = \sqrt{x}$) square root

$y = x^{1/3}$ (same as $y = \sqrt[3]{x}$) cubic root

$y = \log x$ logarithmic

$y = \ln x$ natural log

$y = e^x$ exponential

$y = \frac{1}{x}$ reciprocal

$y = b$ horizontal line

$x = a$ vertical line

$y = |x|$ absolute value

Complete the missing parts of the table in [this document](#). For the graph column, you can include screenshots from Desmos.

Check out this [Kahoot](#) to practice identifying the different graphs.

Let me know if you have any questions. Have a great summer!! :)