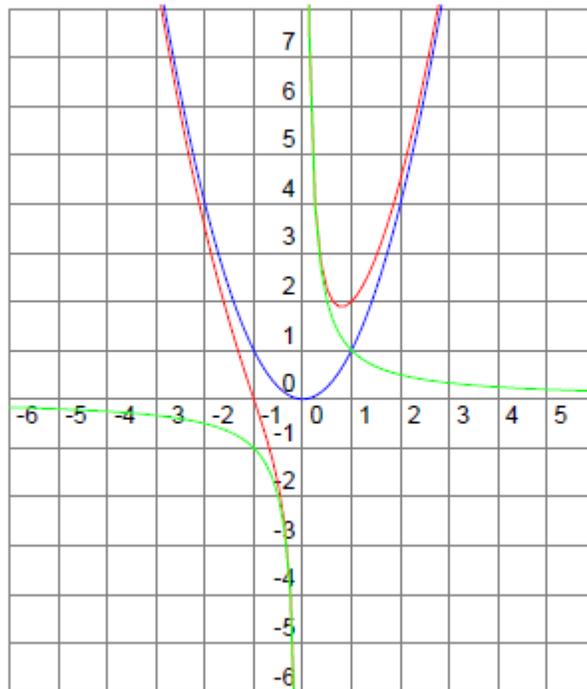# Math 6e: Homework 17

Homework #17 is due February 4th; submit to Google classroom 15 minutes before the class time.
Please, write clearly which problem you are solving and show all steps of your solution.

Adding Graphs

In class we drew a graph of the function $y = x^2 + \frac{1}{x}$. We carefully examined $y = x^2$ (blue) and $y = 1/x$ (green) and looked at what happens if one adds these two graphs (red).

Homework

- To draw a graph of a function, chose a set of points x and find the corresponding y values. Draw the points on a quadrille (square) paper. Connect with a line or a smooth curve. NO desmos - draw using tables for pairs of points as we did in class!
- Please do the same as in the above example (i.e. draw using different colors for the graphs of each function in the addition, and the addition in a different color) for the following:

1. $y = x + \frac{1}{|x|}$ (on one graph)

2. $y = \sqrt{x} + \frac{1}{x}$ (on a different graph)

3. $y = x - \frac{1}{x^2}$ (this should be a third graph)

(Optional) You can check your graphs **AFTER** you finish at: http://fooplot.com/. Type the first function in the panel on the right, then use *Add* to type the second function which you are adding to the first.

Review problems

4. Simplify the following and show the answer in the exponent (power) form

(a) $\dfrac{3^7 \cdot 2^7}{2^3 \cdot 2^4} =$

(b) $\dfrac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$

(c) $\dfrac{7^9 \cdot 2^5}{7^2 \cdot 2^4} =$

(d) $\dfrac{11^4}{11^2 \cdot 5^2 \cdot 5^3} =$

(e) $7^4 \cdot 11^2 \cdot 11^{-5} \cdot 7^2 =$

(f) $\dfrac{3^{-5} \cdot 2^7}{3^{-3} \cdot 2^4} =$

(g) $\dfrac{42^2}{6^2} =$

(h) $\dfrac{3^5 \cdot 3^{-5}}{3^9} =$

(i) $\dfrac{x^2 \cdot y^2 \cdot x^{-3}}{x^2}$

5. Compute, but be very attentive to signs and the order of operations (first: operations in brackets, then multiplication or addition, then addition or subtraction). Show all the steps!

(a) $(-5 - 9) \div (-2) + 7 =$

(b) $-2(-5 - 9) - 7 \times 4 =$

(c) $-9 + 14 \div (-2) + 7 =$

(d) $(-2) \times (-2) \times (-2) \times (-2) \times (-2) =$

(e) $-16 \div (-8) =$

(f) $-16 \div 8 =$

(g) $16 \div (-8) =$