Math 6d: Homework 16

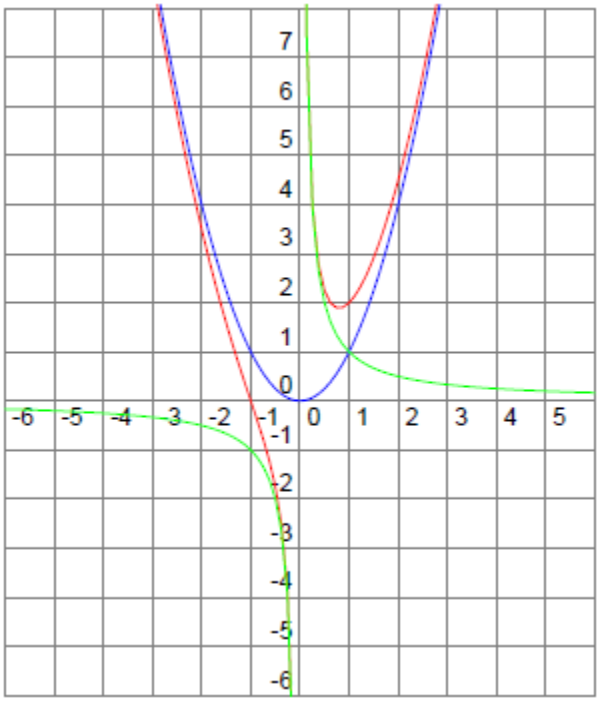
HW#16 is due February 10; submit to Google classroom 15 minutes before the class time.

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 when one adds these two graphs (red).



Homework questions

To draw a graph *of an equation, chose a set of points x and find the corresponding y values. Draw the points on a graph and use 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!*

1. $y = x + \frac{1}{|x|}$
2. $y = \sqrt{x} + \frac{1}{x}$
3. $y = x - \frac{1}{x^2}$

(Optional) You can check your added graphs **AFTER** you finished but this homework requires all graphs added by hand on paper as we did in class.

Practice with powers and basic algebraic operations: redo even if it looks familiar.

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

(a) $\frac{3^7 \cdot 2^7}{2^3 \cdot 2^4} =$ (b) $\frac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$

(c) $\frac{7^9 \cdot 2^5}{7^2 \cdot 2^4} =$ (d) $\frac{11^4}{11^2 \cdot 5^2 \cdot 5^3} =$

(e) $7^4 \cdot 11^2 \cdot 11^{-5} \cdot 7^2 =$ (f) $\frac{3^{-5} \cdot 2^7}{3^{-3} \cdot 2^4} =$

(g) $\frac{42^2}{6^2} =$ (h) $\frac{3^5 \cdot 3^{-5}}{3^9} =$ (i) $\frac{x^2 \cdot y^2 \cdot x^{-3}}{x^2}$

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) $16 \div (-8) =$