

Problem Set 2A: Assignment 2

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MAT 123 - Precalculus

Summer Session II 2018

DUE DATE: NEVER.

Exercise 0. Review sections 2.1 – 2.5. Re-read everything thoroughly. Done? Good! You may now move to **Exercise 1.**

Exercise 1. Let $f(x) = -x + 1$. Find the inverse of f and then graph both f and f^{-1} . Are the lines defined by $-f(x)$ and $f^{-1}(x)$ perpendicular?

Exercise 2. Let f be the function which has the expression $f(x) = -x^2 - 3x + 3$. Find a different form for $f(x)$ by completing the square. Graph f and find the x -values at which the graph of f crosses the x -axis.

Exercise 3. Simplify the following expression:

$$\frac{x^{-10}(y^2)^6}{(x^{-1})^{-8}(y^{12})^{-1}}$$

Exercise 4. Verify that $x^4 + 1 = (x^2 + \sqrt{2}x + 1)(x^2 - \sqrt{2}x + 1)$.

Exercise 5. Let $f(x) = \frac{x+1}{x^2+3}$. What is the domain of f ? Solve the equation $f(x) = \frac{1}{4}$.