

Name: _____

MATH 101

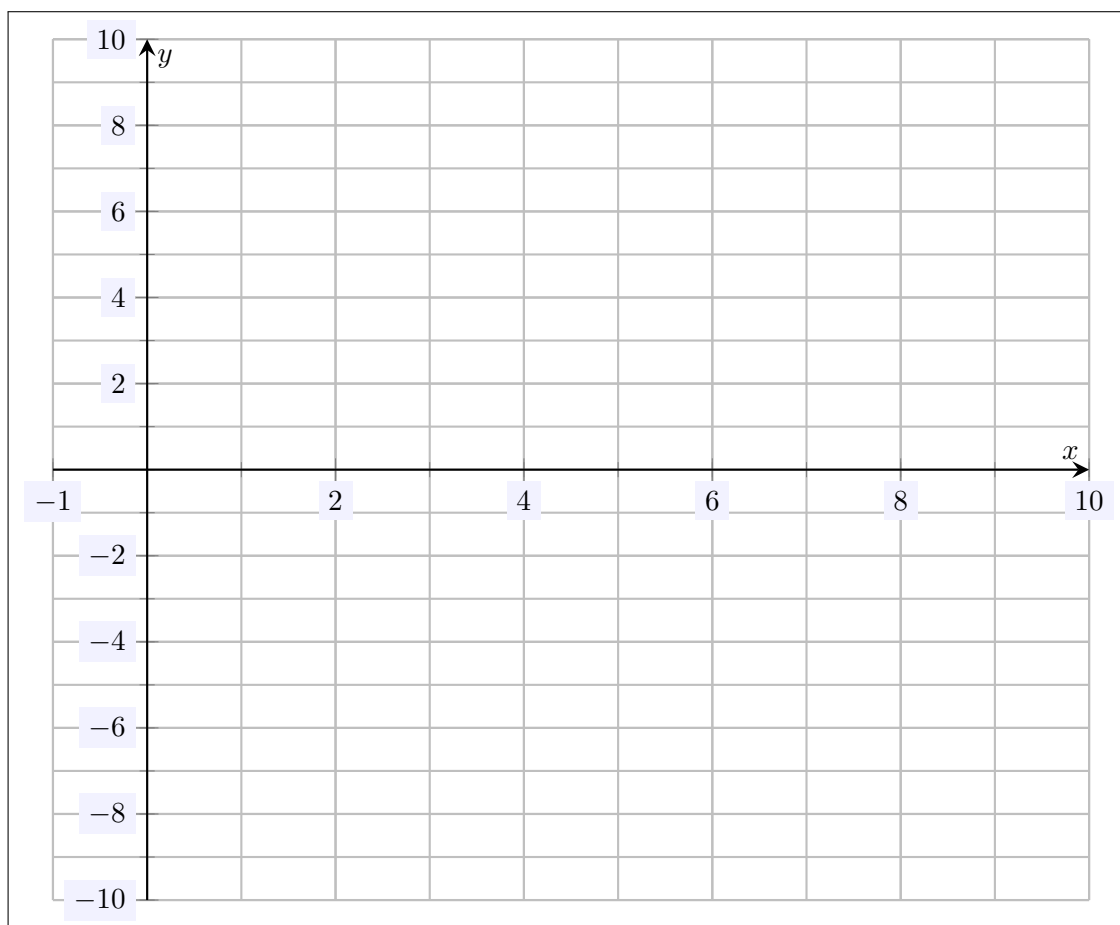
Fall 2021

HW 17: Due 11/23

"I was on the street. This guy waved to me, and he came up to me and said, 'I'm sorry. I thought you were someone else.' And I said, 'I am.'"

—Demetri Martin

Problem 1. (10pt) Sketch the function $y = \log_2 x$.



Problem 2. (10pt) Compute the following:

(a) $\log_4 4 - \log_6 1$

(b) $\log_5 25$

(c) $\log_3 \frac{1}{81}$

(d) $\log_9 \sqrt{3}$

(e) $\ln e^{2/3}$

Problem 3. (10pt) Expand the following logarithm completely by expressing it as a sum or difference of logs. Your answer should not include any exponents.

$$\log_3 \left(\frac{\sqrt[6]{x}}{3y^4} \right)$$

Problem 4. (10pt) Rewrite the expression below as a single logarithm.

$$\frac{1}{2} \ln x - \ln 1 + 3 \ln(x + 2) - \ln(1 - x)$$