

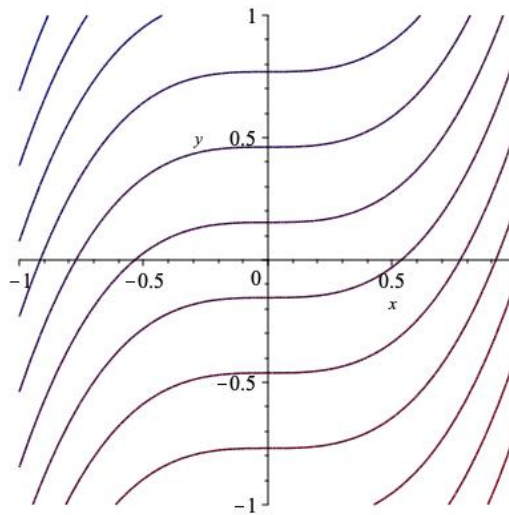
Math 1080, Fall 2025

Quiz on Chapter 1

- You have 25 minutes
- Do NOT use a calculator, the textbook, or notes.
- Show enough work neatly enough that we can tell how you reached your answer.

Question 1.

Here is a contour plot of a function f .



The real f is one of the following functions. Determine which function it is and include 1–3 sentences of explanation for why you are sure you've picked the right one.

- (i) $f(x, y) = \tan(y - x)$
- (ii) $f(x, y) = (y - x)^3$
- (iii) $f(x, y) = \frac{x}{1 + y^2}$;
- (iv) $f(x, y) = y - x^3$

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Question 2. Consider the integral

$$\int_R e^{xy} dA$$

where R is the rectangle $[10, 11] \times [7, 8]$. Approximating this integral by a Riemann sum with one (!) term, the integral should be in which of these ranges of magnitudes? Please circle an answer and give a one-sentence reason.

- (i) a number in the high two-digits, say between 70 and 100
- (ii) between $e^7 \times e^{10}$ and $e^{11} \times e^8$
- (iii) in the trillions
- (iv) a number that's between 30 and 40 digits long