Take this quiz for practice and then check your answers against the posted solutions. This could have been a very fast quiz, because there is not any complicated work to do. I might have given this as a 5-minute quiz.

MATH 141, Fall 2025, QUIZ 8. For every problem, **show appropriate work**.

1. (4 points) Find the absolute maximum **and** the absolute minimum of $f(x) = x^2 - 4x + 3$ on the interval $[0, 3]$ **and** say where (i.e. at what x-value) they are attained. (You must use the method we learned in class. No credit for any other method.)

2. (4 points) There is some function $f(x)$ on the interval $(-\infty, \infty)$ and here is what you know about it:

Critical points are $x = -3$, $x = -1$, and $x = 7$.

$f(-3) = 6$
$f(-1) = 2$
$f(7) = 9$

$\lim_{x \to -\infty} f(x) = 11$
$\lim_{x \to \infty} f(x) = 8$

Two questions:

a. Write down the absolute maximum of f (no explanation needed) **or** explain why it does not exist.

b. Write down the absolute minimum of f (no explanation needed) **or** explain why it does not exist.