Quiz 2 Outline

Format. This quiz has **2 multiple-choice** questions and **3 short-answer** questions.

1. (2 points) Continuity of a piecewise function.

Example (Spring 2025 Exam 1 #26): Consider the function

$$h(x) = \begin{cases} x^2 - 4x + 10, & \text{if } x \leq 1, \\ 3x + k, & \text{if } x > 1. \end{cases}$$

What value of k would make h continuous?

A. N/A

B. N/A

C. N/A

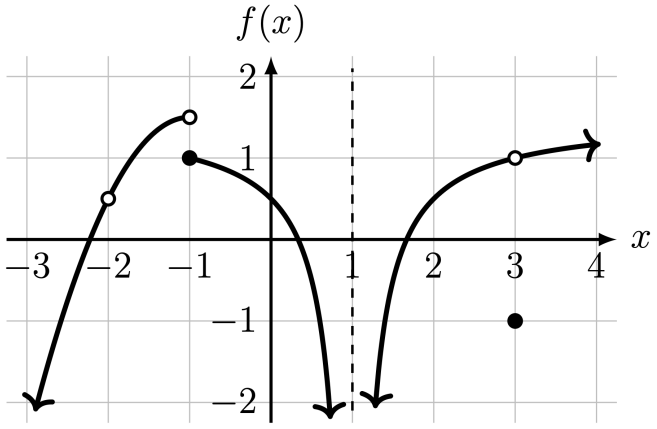
D. N/A

E. N/A

Note: this was a short answer question on the Spring 2025 Exam.

2. (2 points) Use the graph of a function to classify discontinuities.

Example (Spring 2025 Exam 1 #13): Use the following graph of the function f to answer the question below.



At $x = -1$, the function f

A. is continuous.

B. is undefined.

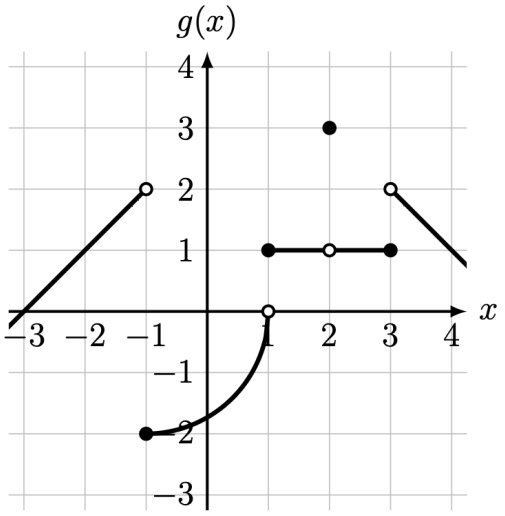
C. has an infinite discontinuity.

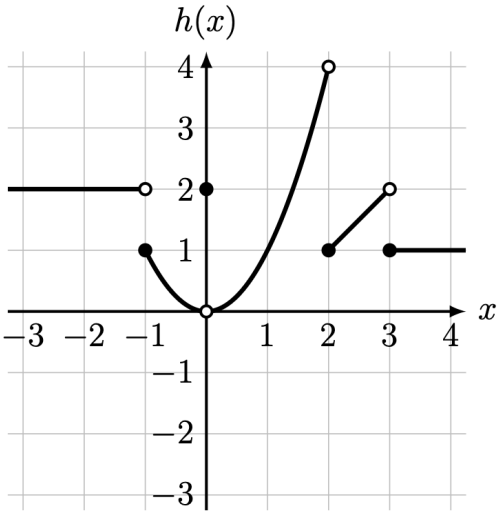
D. has a removable discontinuity.

E. has a jump discontinuity.

3. (6 points) Use the graphs of two functions to compute (possibly wacky!) limits.

Example (Spring 2025 Exam 1 #23-25): Use the following graphs of functions $g(x)$ and $h(x)$ to answer questions 23–25:





(2 points) Evaluate the following limit, if it exists. Otherwise, write DNE.

$$\lim_{x \to -1^+} \big(h(x) + g(x)\big)$$

Answer:

(2 points) Evaluate the following limit, if it exists. Otherwise, write DNE.

$$\lim_{x \to 3^-} g\big(h(x)\big)$$

Answer:

(2 points) Evaluate the following limit, if it exists. Otherwise, write DNE.

$$\lim_{x \to -1} \big(g(x)\big)^2$$

Answer: