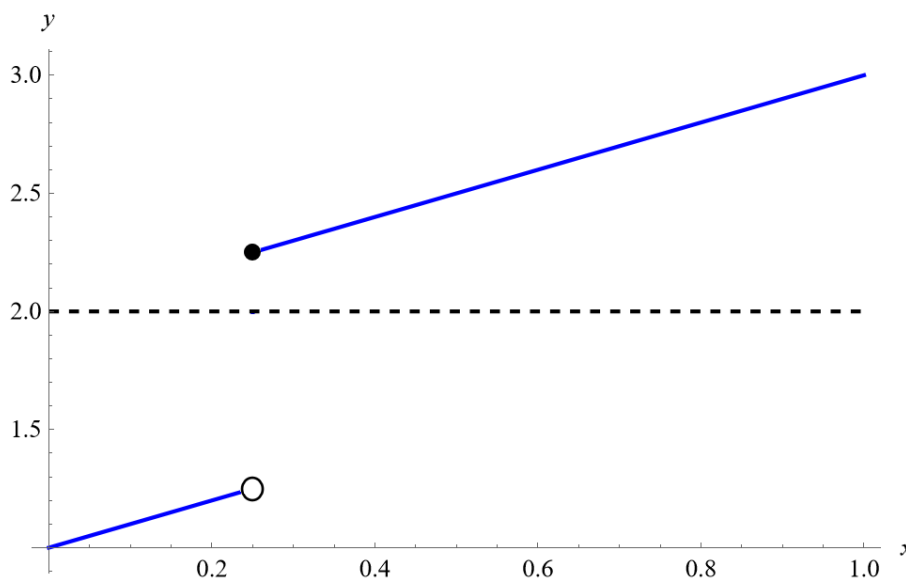


Exercise 50

Suppose that a function f is continuous on $[0, 1]$ except at 0.25 and that $f(0) = 1$ and $f(1) = 3$. Let $N = 2$. Sketch two possible graphs of f , one showing that f might not satisfy the conclusion of the Intermediate Value Theorem and one showing that f might still satisfy the conclusion of the Intermediate Value Theorem (even though it doesn't satisfy the hypothesis).

Solution

The graph of the function below shows how if there's a discontinuity, not all y -values between 1 and 3 can be covered.



The graph of the function below shows how if there's a discontinuity, all y -values between 1 and 3 can be covered.

