Quiz 5.4

Name

1. Let f be the function with derivative $f'(x) = x^3 - 3x + 2$. Which of the following statements is true?

(A) f has no relative minima and one relative maximum.

(B) f has one relative minimum and no relative maxima.

(C) f has one relative minimum and one relative maximum.

(D) f has two relative minima and one relative maximum.

2. The function f is defined by $f(x) = x^2 e^{-x^2}$. At what values of x does f have a relative maximum?

(A) -2

(B) 0

(C) 1 only

(D) -1 and 1

3. Let f be a differentiable function with a domain of $(0, 5)$. It is known that $f'(x)$, the derivative of $f(x)$, is negative on the intervals $(0, 1)$ and $(2, 3)$ and positive on the intervals $(1, 2)$ and $(3, 5)$. Which of the following statements is true?

Quiz 5.4

(A) f has no relative minima and three relative maxima.

(B) f one relative minimum and two relative maxima.

(C) f has two relative minima and one relative maximum.

(D) f has three relative minima and no relative maxima.