Exam 1 Review: Worksheet 2

1. Suppose f is continuous on $[-1,3]$ and $f(-1) = -3$, and $f(3) = 2$. Which one of the following is guaranteed by the Intermediate Value Theorem? (Choose from I, II, III and IV):

(a). $f(c) = 4$ for at least one c between -3 and 2.

(b). $f(c) = 1$ for at least one c between -3 and 2.

(c). $f(c) = 1$ for at least one c between -1 and 3.

(d). $f(c) = 0$ for at least one c between -1 and 3.

(e). $f(c) = -1$ for at least one c between -3 and 2.

I. (b) and (e)   III. (a), (b) and (e)
II. (c) and (d)   IV. (c), (d) and (e)

2. On which of the following intervals must there exist a solution to the equation $x^2 - 4 = \sqrt{x}$?

(a). $(0,1)$

(b). $(1,2)$

(c). $(2,3)$

(d). $(3,4)$

(e). $(4,5)$

3. A plane is flying directly away from you at 500 mph at an altitude of 3 miles. How fast is the plane's distance from you increasing at the moment when the plane is flying over a point on the ground 4 miles from you?