(09.15.2014) Question 1: The differential equation ***y'=(y-2)(t-3)*** has equilibrium values of?

(a) $y = 2$ only (c) $y = 2$ and $t = 3$

(b) $t = 3$ only (d) No equilibrium values

(09.15.14) Question 2: Suppose 3 is an equilibrium value of a differential equation. This means that

(a) the values will approach 3.

(b) if the initial value is below 3, the values will decrease.

(c) if the initial value is 3, then all of the values will be 3.

(d) all of the above.

(09.15.2014) Question 3:We know that a given DE is in the form $y' = f(y)$ where f is a continuous function of y. Suppose that $f(6)=0$, $f(14)=0$ and $y(10)=10$.

(a) This means that $y(0)$ must have been between 6 and 14.

(b) This means that $y(20) = 0$ is impossible.

(c) This means that $y(20) = 20$ is impossible.

(d) All of the above.

(e) None of the above.

(09.15.2014) Question 4: We know that a given DE is in the form $y' = f(y)$ where f is a continuous function of y. Suppose that $f(2)=3$ and $y(0)=0$. Which of the following is impossible?

(a) $y(10) = 6$

(b) $y(10) = -6$

(c) $y(-10) = 6$

(d) $y(-10) = -6$

(e) All of these are possible

(09.15.2014) Question 5: Consider the differential equation $f' = af + b$, where a and b are non-negative parameters. This differential equation will have no equilibrium if

A. a=0

B. b=0

C. a=1

D. More than one of the above.

(09.15.2014) Question 6: TRUE or FALSE. “A differential equation could have infinitely many equilibria.”

A. TRUE **B. FALSE**