09.17.2014, Question 1: What is the equilibrium value of $\frac{dg}{dz} = -\frac{1}{2}g + 3e^z$?

(a) This system is at equilibrium when $g = 6e^z$.

(b) This system is at equlibrium when $z = \ln\left(\frac{g}{6}\right)$.

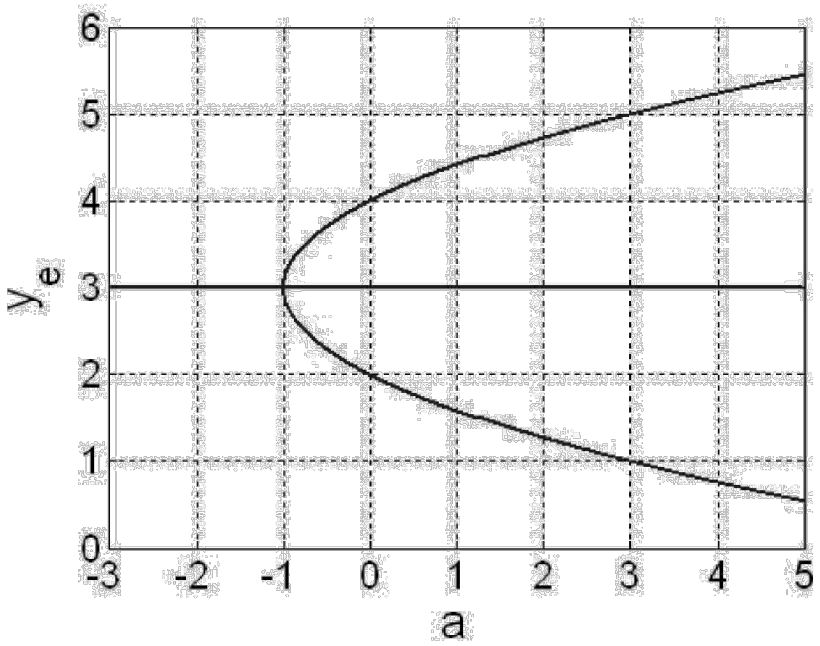
(c) Both a and b are true.

(d) This equation has no equlibrium.

09.17.2014, Question 2: How many equilibria does the DE $y' = y^2 + a$ have?

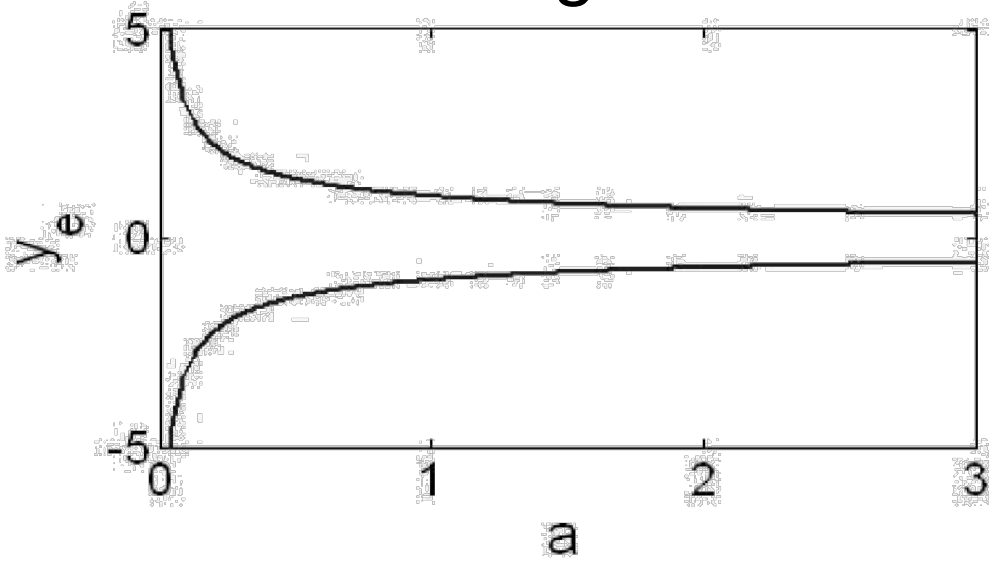
A. Zero.
B. One.
C. Two.
D. Three.
E. Not Enough Information Is Given.

09.17.2014, Question 3: Consider the bifurcation diagram below. If the DE has equilibria at ***y=1, y=3***, and ***y=5*** what is the value of the bifurcation parameter **a**?



A. a=-1
B. a=0
C. a=1
D. a=3
E. Not Enough Information Is Given.

09.17.2014, Question 4: Which of the following diferential equations is represented by the bifurcation diagram below?



(a) $y' = y^2 + a$

(b) $y' = ay^2 - 1$

(c) $y' = ay$

(d) $y' = y^2 + ay + 2$