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System Simulation
HW 7

A) equilibrium points are where all equations equal zero:

1) $0 = 10(y-x)$
2) $0 = -xz + 28x - y$ with $R = 28$
3) $0 = xy - \frac{8}{3}z$

equation 1 solves to $y = x$. Plugging into equation 3, $0 = x^2 - \frac{8}{3}z \rightarrow z = \frac{3}{8}x^2$. Plugging both into equation 2, $0 = -x\frac{3}{8}x^2 + 28x - x \rightarrow 0 = \frac{3}{8}x^3 + 27x$ giving $x = \pm 6\sqrt{2} = y$. From this we find $z = 27$. equilibrium points are then $(x\ y\ z) = (0\ 0\ 0), (6\sqrt{2}\ 6\sqrt{2}\ 27)$, and $(-6\sqrt{2}\ -6\sqrt{2}\ 27)$

B) see attached matlab