Economics 311 — Fall 2017
Daily Problem #21 — November 13

Variables that are stationary have forces that pull them back to a fixed mean and variance in the long run following a shock. Non-stationary variables may not.

1. Which of the following variables would you think would be stationary and which would be non-stationary, and why?

a. log of U.S. GDP
b. U.S. GDP growth rate (%)
c. U.S. unemployment rate
d. log of U.S. CPI
e. U.S. inflation rate
f. size of Reed's student body
g. size of Reed's endowment

2. The following are a collection of data-generating process for time-series variables. Which process will lead to a stationary variable and which will lead to a non-stationary variable? In each case, u_t is white noise.

a. u_t
b. $x_t = 0.5x_{t-1} + u_t$
c. $a_t = 0.999a_{t-1} + u_t$
d. $i_t = i_{t-1} + u_t$
e. $e_t = 1.1e_{t-1} + u_t$