Solutions Problemset Simulation

24.1.) Classification:

Problem	Time/State -Models	Determ./ Probab.	Static/ Dynamic	Linear/ Nonlin	Stable/ Unstable
a) $y(t) = t + 0.2$	cont. time /cont. state	det	dyn	linear	unstable
b) $y(t) = t^2$	cont. time /cont. state	det	dyn	nonlin	unstable
c) $y(t+1) = y(t) + \Delta$	discr. time/cont. state	det	dyn	linear	unstable
d) $y(t+1) = 2n(t) + 3$	discr. time/discr. state	det	dyn	linear	unstable
e) $y(t) = \sin(\omega t)$	cont. time/cont. state	det	dyn	nonlin	stable
f) $\overline{y}(t+1) = \overline{y}(t) + \Delta$	discr. time/cont. state	prop	dyn	linear	unstable

24.2.) Simulation Types:

a) To model destination address reference patterns in a network traffic given that the pattern depends upon a large number of factors
   - ➢ Trace-driven Simulation

b) To model scheduling in a multiprocessor system given that the request arrivals have a known distribution
   - ➢ Discrete-event Simulation

c) To determine the value of π
   - ➢ Monte Carlo Simulation