Problem Set 1

Chp2 #2

a) Nominal GDP in 1998=(100*$10)+(200*$1)+(500*$0.50)=$1450
b) Nominal GDP in 1999=(110*$10)+(200*$1.50)+(450*$1)=$1850
c) Real GDP in 1998 is $1450 (same as nominal GDP, since 1998 is base year)
   Real GDP in 1999=(110*$10)+(200*$1)+(450*$0.50)=$1525
   Percentage change in real GDP=($1525-$1450)/$1450=0.01517, an increase of 5.2 %
d) Real GDP in 1998=(100*$10)+(200*$1.50)+(500*$1)=$1800
   Real GDP in 1999 is $1850 (same as nominal GDP, since 1999 is base year)
   Percentage change in real GDP=($1850-$1800)/$1800=0.0278, an increase of 2.8 %
e) The statement is true. In this problem, we have obtained two different growth rates by using two different base periods

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Chp3 #1

a) Y=C+I+G=100+0.6(Y-100)+50+250=310+0.6Y
   Y=*50
b) Y_d=Y-T=850-100=750
c) C=100+0.6Y_d=100+0.6(750)=550
d) S= Y_d-C=750-550=200
e) Public Saving = Budget Surplus(T-G)=(100-250)= -150
f) Multiplier=1/(1-marginal propensity to consume)=2.5

Chp3 #2

a) In equilibrium
   Production=850
   Demand=C+I+G=850
b) Total saving = Private Saving + Public Saving=200+(-150)=50

Chp3 #3

a) The multiplier is 1/(1-0.6)=2.5
   ΔGDP=2.5ΔG
   we want ΔGDP=100, therefore ΔG=40
b) We need autonomous spending to change by 40. A tax cut will increase the consumption component of autonomous spending. But,since only 60 percent of the tax cut will be spent, we need a tax cut of 40/0.6=66.67

Chp3 #4

a) $Y=C+I+G=C_0+C_1(Y-T)+I+G= C_0+C_1(Y-T_0-t_1Y)+I+G= C_0-C_1(T_0)+I+G+C_1Y-C_1t_1Y$
   $Y=\{C_0- C_1(T_0)+I+G\}/[1-C_1(1-t_1)$
b) The multiplier is $1/[1-C_1(1-t_1)]$
c) Thgis multiplier is smaller than the one obtained with exogenous taxes.

Chp4 #1

a) In equilibrium with constant Y, Y_{t+1} is the same as Y_t, so we can ignore the time subscripts and solve this model.
   $Y=C+I+G=50+0.75(Y-100)+25+150$
   $Y=800$
b)

t	t+1	t+2
$\Delta C= 0$	$\Delta C= -75$	$\Delta C= -56.25$
$\Delta Z= -100$	$\Delta Z= -75$	$\Delta Z= -56.25$
$\Delta Y= 0$	$\Delta Y= -100$	$\Delta C= -75$

d) i) The multiplier is 1/(1-0.75)= 4, so the fall in G should cause a 400 drop in equilibrium Y, to 200
   ii) In equilibrium $Y_t= Z_t$, so demand will also be 200
   iii) $C=50+0.75(Y_t-Y)$_=50+0.75(200 - 100)=125
e) The change in output in the first five periods is -100 -75 -56.25 -42.19 -31.64