1) Consider the following IS/LM/FE model:

FE: \( Y^* = 1,000 \)

IS: \( Y = 5,000 - 800r \)

LM: \( r = .05Y - .1\left(\frac{M}{P}\right) \)

Where \( Y \) is real GDP in billions, \( r \) is the real interest rate as a percentage, \( P \) is the price level and \( M \) is the money supply in billions.

a) Assuming that the money supply is currently 675 billion, solve for the equilibrium interest rate and price level.

\[
1,000 = 5,000 - 800r
\]
\[
r = 5
\]
\[
5 = .05(1,000) - .1\left(\frac{675}{P}\right)
\]
\[
P = 1.5
\]

b) Suppose that the a negative shock to corporate investment lowers IS to

\( Y = 4,500 - 800r \)

Calculate the short run impact on interest rates and GDP.

\[
r = .05(4,500 - 800r) - .1\left(\frac{675}{1.5}\right)
\]
\[
r = 4.39
\]
\[
Y = 988
\]
c) Calculate the long run impact on price.

Note: if GDP returns to, 1000

\[ 1,000 = 4,500 - 800r \]
\[ r = 4.375 \]

\[ 4.374 = .05(1,000) - .1\left(\frac{675}{P}\right) \]

\[ P = 1.47 \]