Consider the following model of the goods market  (circle the correct answer when relevant)

\[ C = 200 + 0.75 Y_D \]  (1)  \( C \) is consumption

\[ Y_D = Y - T \]  (2)  \( Y_D \) is disposable income

\[ T = 100 + 0.2Y \]  (3)  \( T \) is taxes and \( Y \) is income

\[ I = 250 - 500i \]  (4)  \( I \) is investment

\[ G = 475 \]  (5)  \( G \) is government spending

\[ Z = C + I + G \]  (6)  \( Z \) is aggregate demand

\[ i = 0.1 \ (10\%) \]  (7)  \( i \) is equilibrium interest

a. Calculate equilibrium income  \( Y = \)___________

b. The money demand is characterized by the following equation:

\[ M^d = 0.5Y - 1,000i \]  (8)

Calculate the money supply necessary to keep this economy in equilibrium

\[ M^s = \]___________
c. Show the IS-LM equilibrium of the economy on the graph below. Name all the axes and curves and enter the value of Y and i in equilibrium.

![Graph showing IS-LM equilibrium]

d. Now assume that this economy is affected by a decrease in consumer confidence: i.e. the intercept of the consumption function falls to 150 i.e. \( C = 150 + 0.75 Y_D \).

Show the impact on the economy using the IS-LM framework below:

![Graph showing impact of decrease in consumer confidence]

Name all the axes and curves and show the relevant shift(s) of the curve(s) – show the old equilibrium \( i_0 \) and \( Y_0 \) and the new equilibrium \( i_1 \) and \( Y_1 \).
e. Calculate the new equilibrium Y and i for the economy. Use all the same equations as above except for the new consumption function.

i. Derive the new equation for IS (Y as a function of i):

ii. Derive the equation for LM assuming the same money supply as calculated in b. (i as a function of Y):

iii. Calculate the new equilibrium value of Y and i for the economy:
f. What happens to the total amount of taxes paid by the public?

- increases
- decreases
- or
- stays the same

Calculate the change in tax (if relevant):

What happens to the budget surplus?

- increases
- decreases
- or
- stays the same

Calculate the change (if relevant):

Will this form of taxation (as illustrated in equation (3))

- amplify
- dampen
- or
- have no impact on

the ups and downs of the economy (i.e. the business cycle)