

Name:

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All questions must be answered on this test form!

For each question you must show your work and (or) provide a clear argument.

All graphs must be accurate to get credit.

Question 1 The demand for rental apartments is $Q_D(P) = 1,500 - P$. Supply is given by $Q_S(P) = 500 + 4P$.

(a) The equilibrium price and quantity are

$P =$, $Q =$

6 points

(b) Now suppose that the government provides a subsidy of 50 Dollars to people who rent apartments. Then

3 points

Then the equilibrium quantity of rental apartments is $Q =$

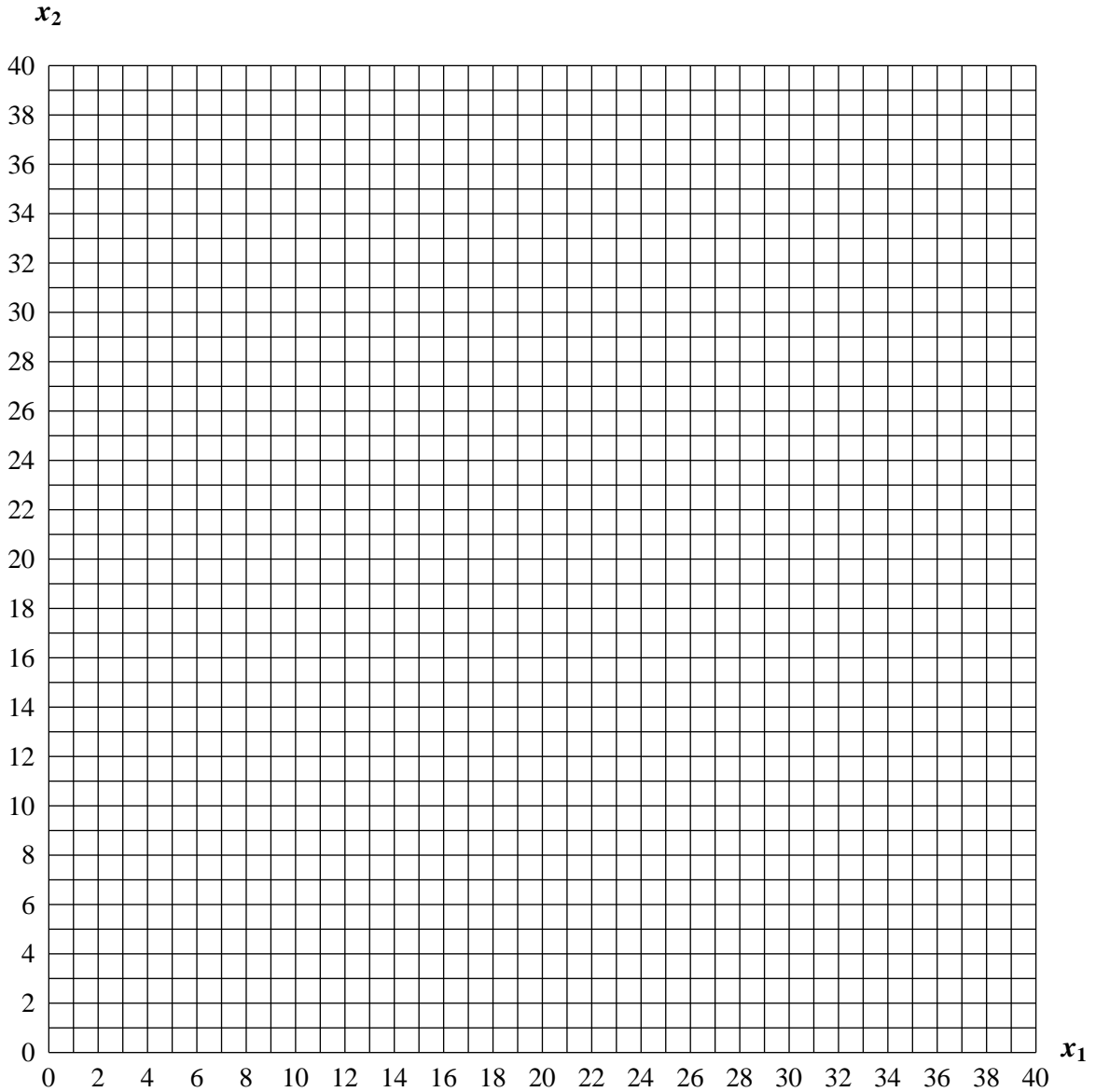
and the cost of renting an apartment, i.e., P minus the subsidy is .

The government spends \$ on the subsidy program. 3 points

Question 4 A person's utility function is given by $u(x_1, x_2) = \min\{1.5x_1, x_1 + x_2\}$. Originally price are $p_1 = 2$, $p_2 = 1$ and $I = 30$. Then the price of good 2 increases to $p_2 = 6$. In the grid below graph the two budget lines, the optimal choice before and after the price change, and the indifference curves through the optimal choices. 12 points

If $p_1 = 2$ and $p_2 = 1$ the optimal choice is $x_1 =$ _____ , $x_2 =$ _____

If $p_1 = 2$ and $p_2 = 6$ the optimal choice is $x_1 =$ _____ , $x_2 =$ _____

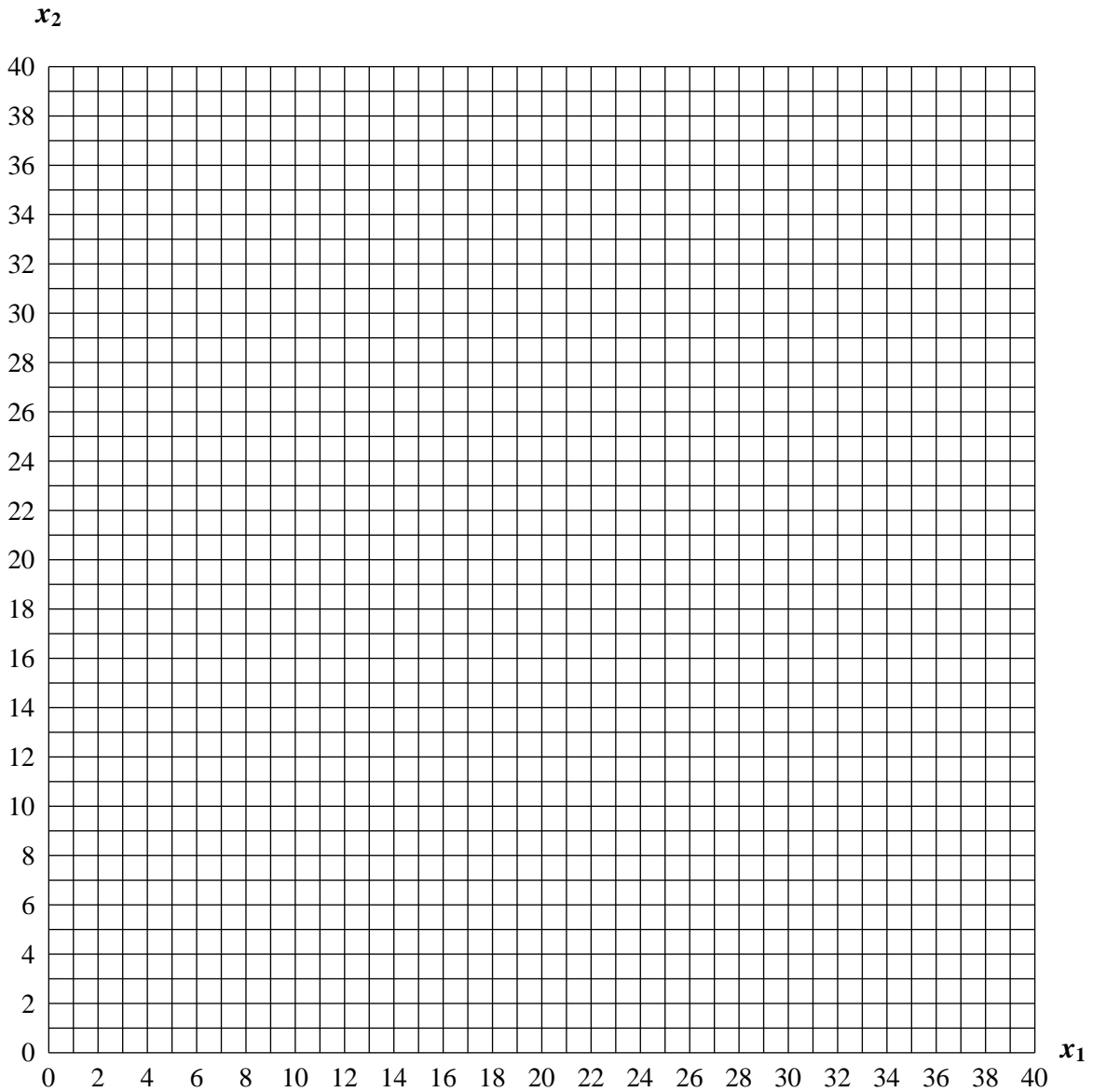


Question 5 A person has utility function $u(x_1, x_2) = 3x_1 + 2x_2$. Income is $I = 40$. The price of good 2 is $p_2 = 1$. The price of good 1, however, is non linear. The price per unit for the first 20 units is $p_1 = 1$. The price of every additional unit is $p_1 = 2$, since the government imposes a tax of 1 Dollars on every unit in excess of 20. In the grid below, graph the budget set (*clearly indicate it by shading it*), determine the optimal consumption choice, and graph the indifference curve through the optimal consumption point.

12 points

Optimal consumption is $x_1 =$ _____, $x_2 =$ _____.

The government's tax revenue is \$ _____.

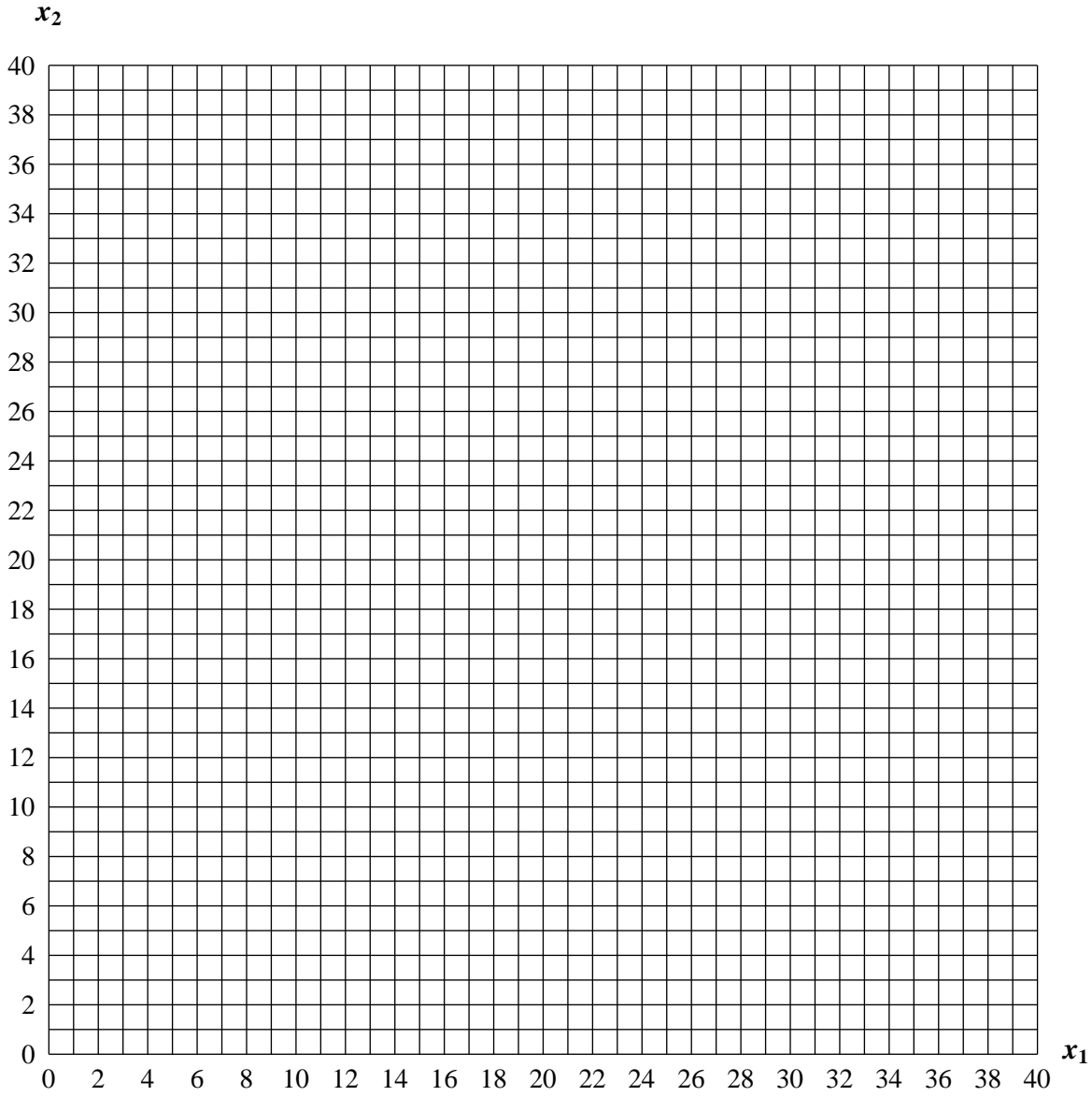


Question 6 Determine graphically the solution of the following expenditure minimization problem. Utility is $u(x_1, x_2) = 2x_1 + 3x_2$. The person wants to find the least costly consumption bundle at prices $p_1 = 2$, $p_2 = 4$, such that utility is at least 60. You must graph at least the indifference curve and the iso cost curve through Hicksian demand.

11 points

Hicksian demand is , $x_1 =$ $x_2 =$

Expenditures are

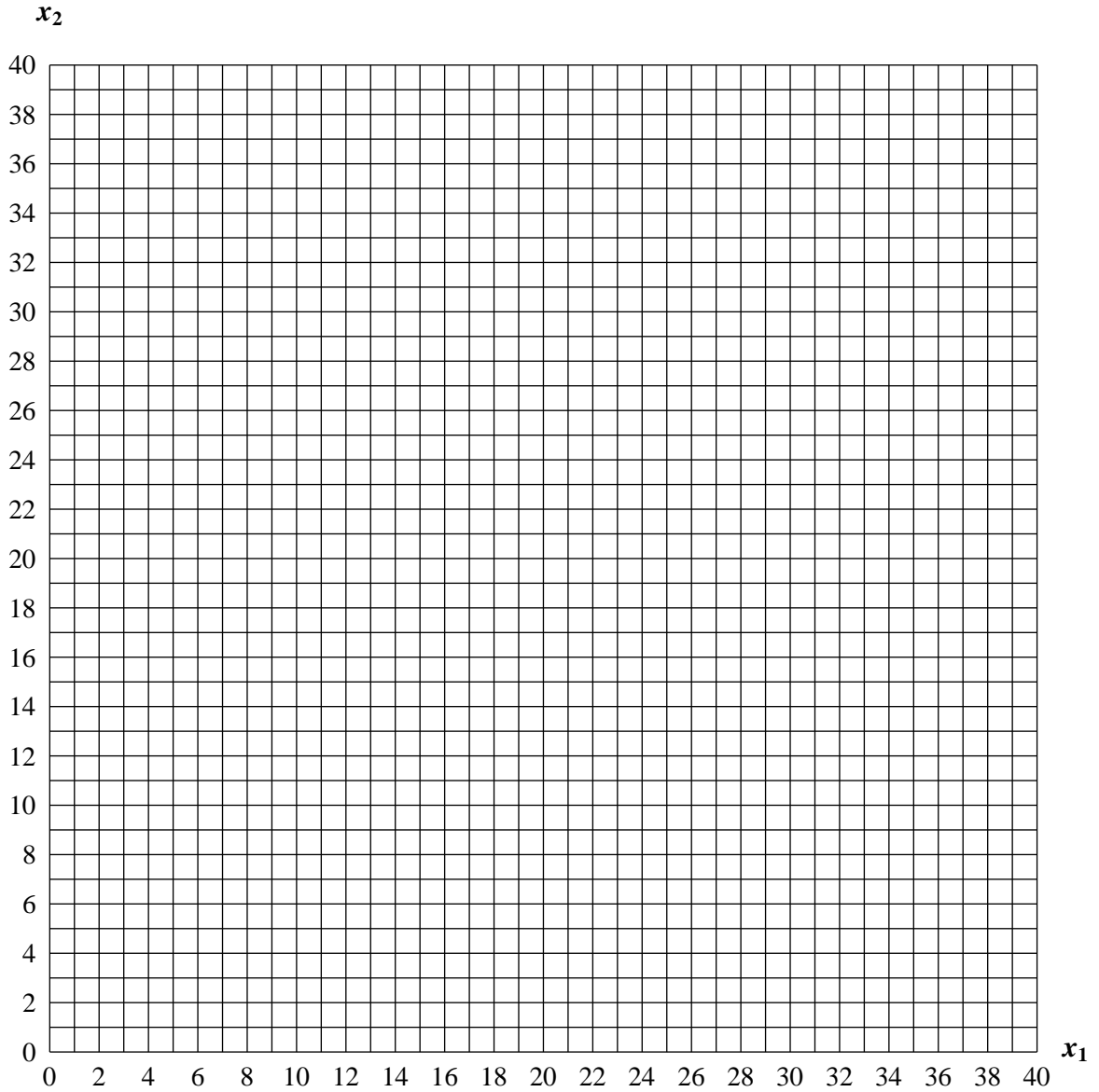


Question 7 Solve the following programming problem graphically.

$\min_{x_1, x_2} x_1 + 2x_2$ subject to (i) $x_1 \leq 2x_2$, (ii) $x_1 \geq x_2$, (iii) $x_1 + x_2 \geq 30$, (iv) $x_1 \geq 0$,
(v) $x_2 \geq 0$.

The solution is $x_1 =$ $x_2 =$

12 points



Question 8 A consumer's preferences are depicted below. Originally, prices are $p_1 = 4$, $p_2 = 6$ and the person's income is $I = 24$. Then the government decides to provide a subsidy of 5 Dollars on each unit of good 2. Thus, the price after the subsidy is $p_2 = 1$.

12 points

The optimal consumption after the subsidy is

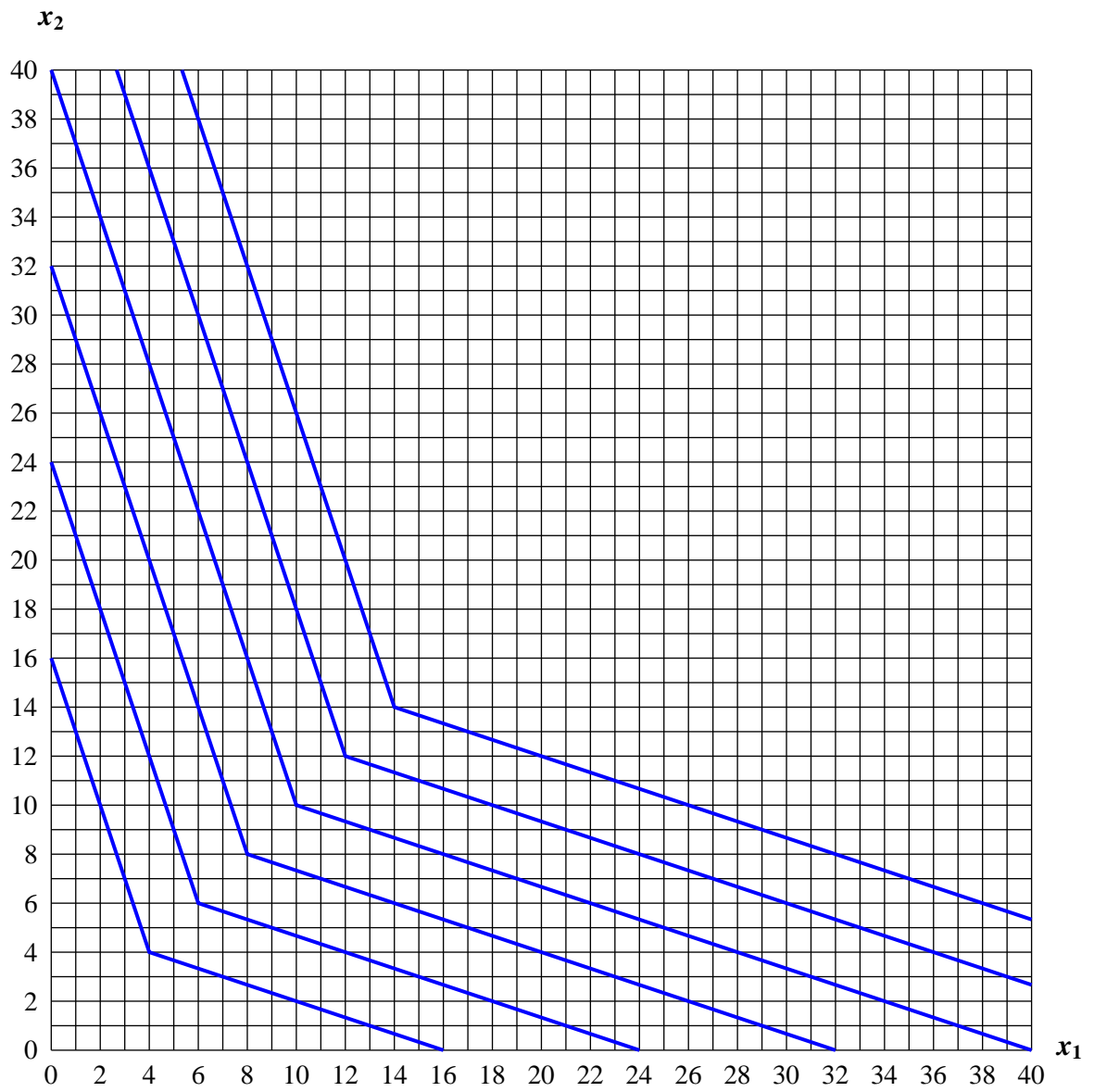
$x_1 =$ _____ , $x_2 =$ _____

In order to have the same utility as after the subsidy at pre-subsidy prices $p_1 = 4$, $p_2 = 6$ the person income would have to be $I' =$ _____

The difference between I and I' gives the amount of a lump-sum subsidy that would be equivalent to the subsidy on good 2 in terms of consumer utility. The deadweight loss generated by the subsidy of 1 Dollar on good 2 is the difference between the total subsidy payment by the government and the utility equivalent lump-sum subsidy.

The deadweight loss of the subsidy is _____

Use the grid on the following page to answer the questions. All appropriately budget lines must be in the graph, as well as the optimal choice or Hicksian demand points. Also, you must graph the indifference curve through the Hicksian demand point (unless the indifference curve is already provided).



Question 9 Suppose that supply for a product is very elastic (i.e., the elasticity is close to ∞) while demand is very inelastic (i.e., the elasticity is close to 0).

Explain briefly what happens in each of the following cases to the equilibrium price P and the equilibrium quantity Q . If either P or Q do not change much, then you must say so in the answer. Similarly, if you know the approximate amount of a change of P or Q you must indicated that.

1. Input prices for the product strictly decrease.

3 points

2. The government imposes a tax of 4 Dollars on consumers, for each unit purchased.

3 points

3. The good is a normal good and household incomes increase.

3 points