

Econ 1101
Practice Questions about Consumer Theory

$$10u / \$2 = 5 u/\$$$

Question 1: Sam eats only green eggs and ham. He has an income of \$36. Green eggs have a price of $P_G = \$2$ and ham has a price of $P_H = \$6$. Sam's preferences are represented by the utility function

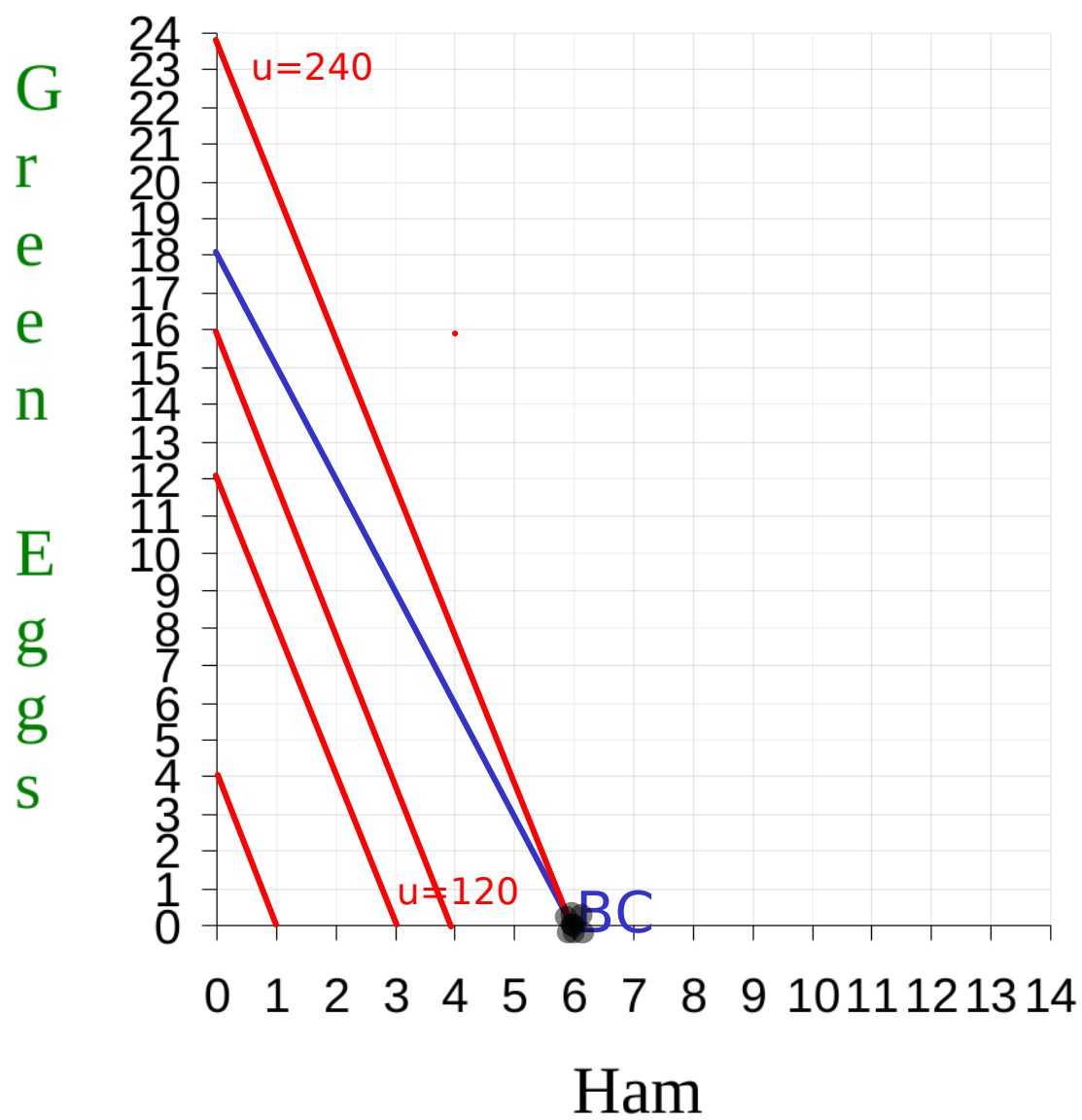
$$\text{Utility} = 10*Q_G + 40*Q_H$$

where Q_G and Q_H are Sam's consumption of green eggs and ham.

(a) On the graph below, draw in Sam's budget constraint. Put ham on the horizontal axis, which is how the graph is labeled. Label the budget constraint.

(b) Sam has which kind of preferences?

1. Green Eggs and Ham are Perfect Substitutes
2. Green Eggs and Ham are consumed in fixed proportions
3. Sam's indifference curves feature diminishing marginal rate of substitution (MRS) between green eggs and ham.



$$10 \text{ utils} / \$2 =$$

c) At these prices:

Utility per dollar spent on green eggs is utils (Fill in a whole number. Let's use util as the unit).

$$40 \text{ utils} / \$6 = 20/3 \text{ u}/\$ =$$

Utility per dollar spent on ham is utils.

(d) Sam's optimal consumption bundle is green eggs and ham.

(e) Illustrate the optimal consumption bundle on the graph and draw Sam's indifference curve through this point. Label the indifference curve.

(f) Sam's marginal rate of substitution (the value of one more ham in terms of green eggs) is green eggs.

(g) The absolute value of the slope of the budget constraint (the opportunity cost of one more ham in terms of green eggs) is green eggs for one more ham.

$$\text{MRS} = \text{MB (of ham in terms of eggs)} = 4$$

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$$\text{slope(BC)} = \text{MC (ham in terms of eggs)} = 3$$

Question 2:

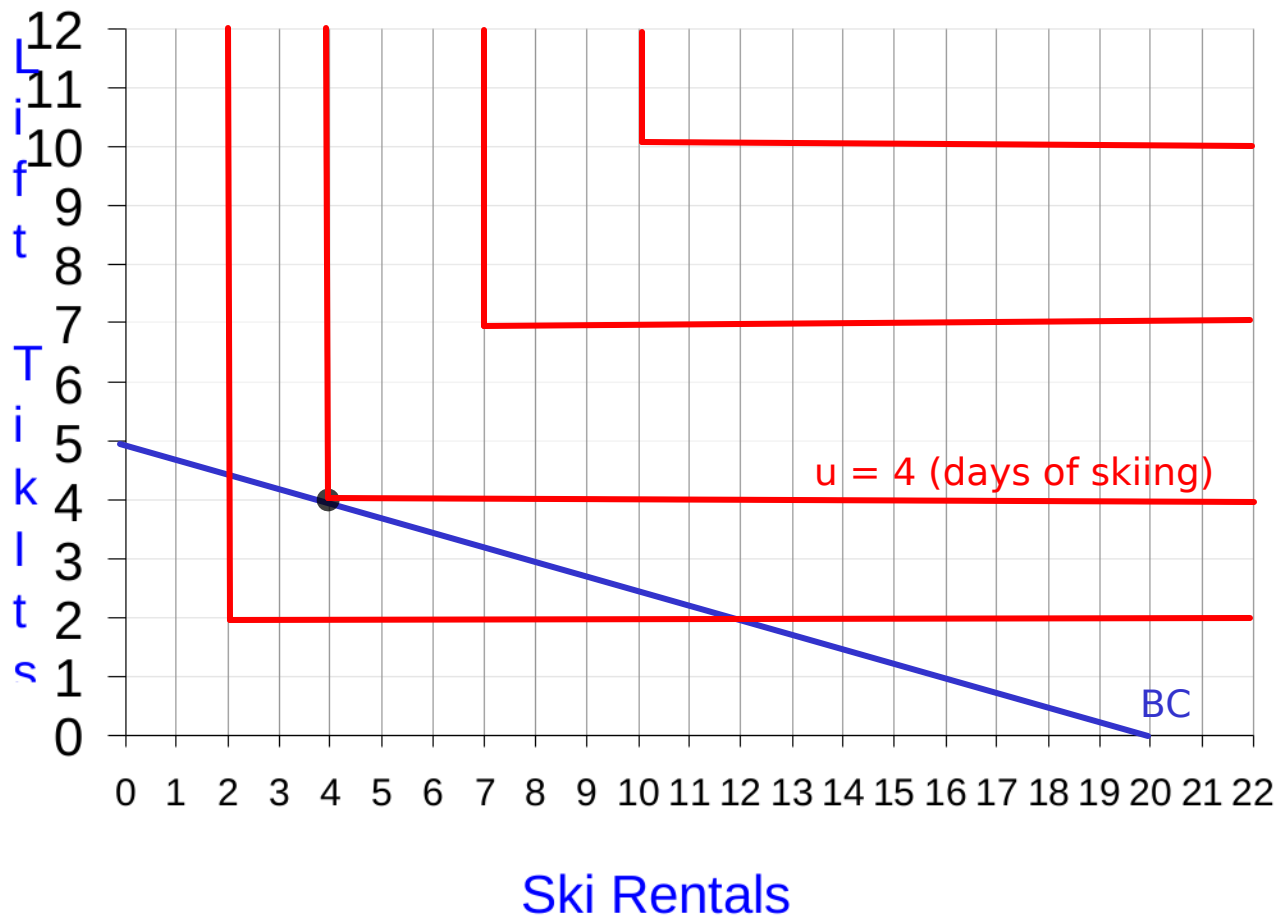
Jill loves skiing and wants to go as often as she can afford to. For each day she skis, she needs to rent skis and buy a lift pass. Ski rentals are \$10 a day and lift passes are \$40 a day. She has \$200 to spend on skiing this winter.

(a) In the graph below, draw in Jill's budget constraint for the number of ski rental days and the number of lift pass days.

(b) Jill's optimal consumption bundle is ski rentals and lift tickets.

(c) Illustrate her optimal consumption bundle and draw Jill's indifference curve through it.

(d) Draw her indifference curve through $Q_{\text{Rental}} = 2, Q_{\text{Lift}} = 2$ and another one through $Q_{\text{Rental}} = 6, Q_{\text{Lift}} = 6$



Question 3. Frodo eats lembas bread and wine. His indifference curves are illustrated in the next page below. Suppose the prices of lembas bread and wine are $P_L = \$5$ and $P_W = \$10$.

(a) Suppose Frodo has an income of \$40. Draw in Frodo's budget constraint and label it "BC(I=40)". (Put lembas bread on the horizontal axis, as illustrated.)

(b) The slope (in absolute value) of the budget constraint is wine for one more lembas bread.

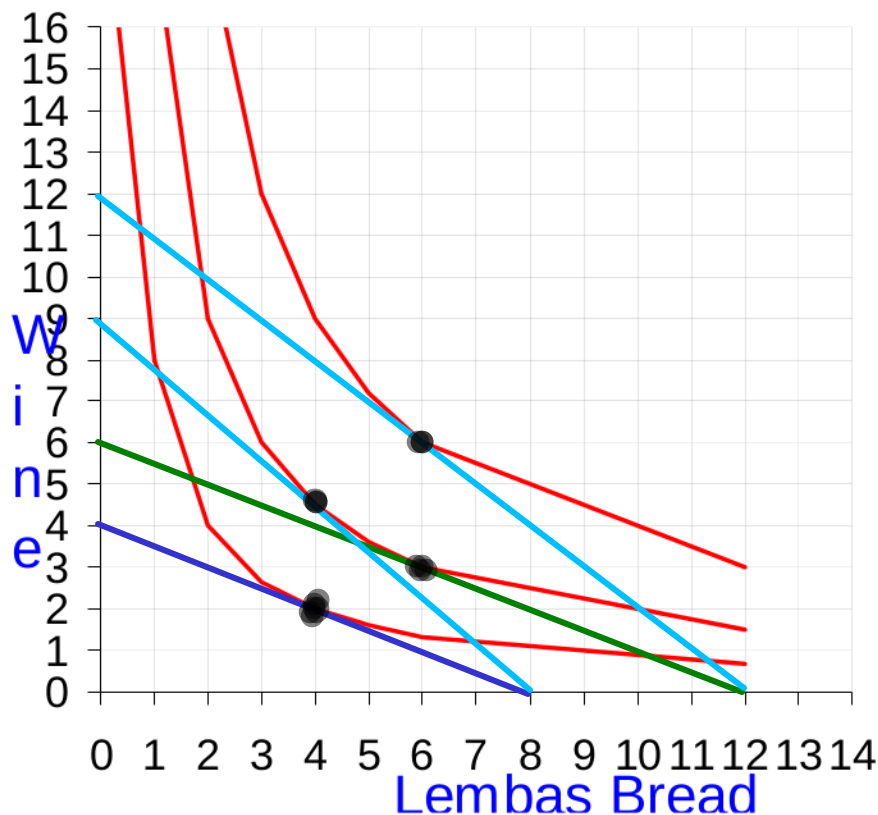
(c) At this income, Frodo's optimal consumption bundle is lembas bread units and wine units.

(d) The marginal rate of substitution at the optimal consumption bundle is wine for one more lembas bread.

opport. cost = MRS = 0.5 $\Rightarrow$ MC = MB (of bread in terms of wine)

(e) Suppose prices remain the same but Frodo's income increases to \$60. Illustrate the new

budget constraint. The new optimal consumption is lembas bread units and wine units.



(f) From comparing (c) and (e), we can tell that wine is a normal good and lembas bread is an inferior good.

True or False (Circle one)

(f) If there are only two goods that Frodo consumes, wine and lembas bread, then it is still possible for both goods to be inferior. That is, it could happen that when Frodo's income doubles, he consumes less of both goods.

True or False (Circle one)