

Economics 101
Spring 2001
Section 4 - Hallam
Quiz 5

Consider the following table for all of the problems on the quiz. All of the combinations of q_1 and q_2 lead to a utility level of 9.614. The price of q_1 is \$6 and the price of q_2 is \$4. Δq_1 and Δq_2 are computed with the upper number being subtracted from the lower one.

q_1	q_2	Δq_1	Δq_2	$\Delta q_1 / \Delta q_2$	cost	u	MU_1	MU_2	MU_1 / P_1	MU_2 / P_2	MRS_{12}	$-P_2 / P_1$
0.9615	15	-	-	-	65.77	9.614	1.470376	0.354203	0.245063	0.0885507	-0.24089	
1.2253	14	0.263750778	-1	-0.26375078	63.35	9.614	1.296102	0.373881				
1.5427	13	0.317489372	-1	-0.31748937		9.614	1.134273	0.395874				
1.9291	12	0.386381405	-1	-0.38638141		9.614	0.984653	0.420616	0.164109	0.105154		
2.4052	11	0.47604905	-1	-0.47604905	58.43	9.614	0.846999	0.448657	0.141167	0.1121642		
3	10	0.594775076	-1	-0.59477508		9.614	0.721056	0.480704				
3.7550	9	0.755077349	-1	-0.75507735		9.614	0.606557	0.517681				
4.7315	8	0.976434137	-1	-0.97643414		9.614	0.503222	0.560821			-1.11446	
6.0217	7	1.290191835	-1	-1.29019183		9.614	0.410758	0.611805			-1.48945	
7.7705	6	1.748817984	-1	-1.74881798	70.62	9.614	0.328854	0.672985	0.054809	0.1682464	-2.04645	
10.214	5	2.444313631	-1	-2.44431363	81.29	9.614	0.257179	0.747762			-2.90755	
13.762	4	3.547286431	-1	-3.54728643	98.57	9.614	0.19538	0.841232			-4.30562	
19.158	3	5.39661543	-1	-5.39661543	126.95	9.614	0.143076	0.961408	0.023846	0.2403519	-6.71958	

- What is the marginal utility per dollar for q_2 when $q_2 = 9$ and $q_1 = 3.755$?
 - 0.1411
 - 0.1121
 - 0.1201
 - 0.1294
 - 0.1011
- What is the marginal rate of substitution of q_1 for q_2 when $q_1 = 3$ and $q_2 = 10$?
 - 0.41717
 - 0.5297
 - 0.8535
 - 1.1145
 - 0.6667

3. What is the slope of the budget line for this consumer?
 - a. -0.5
 - b. -0.6667
 - c. -0.3333
 - d. -1.5
 - e. -1.6667

4. What is the marginal utility per dollar for q_1 when $q_2 = 11$ and $q_1 = 2.4052$?
 - a. 0.1411
 - b. 0.1121
 - c. 0.1201
 - d. 0.1294
 - e. 0.1011

5. Along an indifference curve, which of the following is correct?
 - a. $-MU_{q_1} \Delta q_1 + MU_{q_2} \Delta q_2 = 0$
 - b. $MU_{q_1} \Delta q_1 + MU_{q_2} \Delta q_2 = 0$
 - c. $MU_{q_1} \Delta q_1 - MU_{q_2} \Delta q_2 = 0$
 - d. $MU_{q_2} \Delta q_1 - MU_{q_1} \Delta q_2 = 0$
 - e. $MU_{q_1} \Delta q_2 + MU_{q_2} \Delta q_1 = 0$

6. If $q_2 = 11$ and $q_1 = 2.4052$ and the consumer decides to reduce q_2 to 10, can he afford to increase q_1 to 3 if income is \$58?
 - a. Yes
 - b. No

7. The equation in #5 is an approximation and can be used to determine the change in utility from changing amounts of q_1 and q_2 along an indifference curve. Assume the consumer starts at $q_2 = 11$ and $q_1 = 2.4052$ and then moves to $q_2 = 10$ and $q_1 = 3.4052$. What is the change in utility if one uses marginal utility at $q_2 = 11$ and $q_1 = 2.4052$ for the computation?
 - a. 0.04813
 - b. 0.06375
 - c. 0.3983
 - d. 0.2403
 - e. 0.05512

8. Do you think the point $q_2 = 10$ and $q_1 = 3.4052$ is on the indifference curve for $u = 9.614$?
 - a. Yes
 - b. No

9. Which combination is the least cost way to obtain 9.614 units of utility?
 - a. $q_1 = 1.9291$ $q_2 = 12$
 - b. $q_1 = 2.4052$ $q_2 = 11$
 - c. $q_1 = 3$ $q_2 = 10$
 - d. $q_1 = 3.7550$ $q_2 = 9$
 - e. $q_1 = 7.7705$ $q_2 = 6$

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Answers

1. d
2. e
3. b
4. a
5. b
6. a
7. c
8. b
9. c