

Name: ANSWER KEY

ECON 300
In-class assignment
February 9, 2015

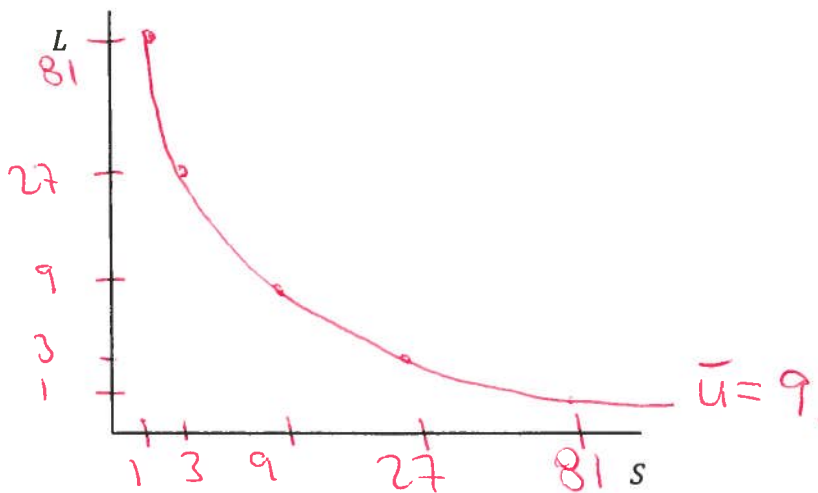
1. Suppose Joe's utility for lobster (L) and soda (S) can be represented as $U(L, S) = L^{0.5}S^{0.5}$.
- a. Fill in the table below and find the amount of soda that would keep Joe at a **utility of 9**.
Hint: Rearrange the utility equation to get S alone on the left side and then plug in the various values of L .

$U(L, S)$	L	S
9	81	1
9	27	3
9	9	9
9	3	27
9	1	81

2 pts

$$S = \left(\frac{9}{L^{1/2}}\right)^2 = \frac{81}{L}$$

- b. Draw the indifference curve that yields a utility level of 9 using the table above. Label the utility function.



1 pt

- c. Calculate Joe's marginal rate of substitution, $MRS_{S,L} = -\frac{MU_S}{MU_L}$.

2 pts

$$MRS = -\frac{MU_S}{MU_L} = \frac{-0.5 L^{0.5} S^{-0.5}}{0.5 L^{-0.5} S^{0.5}} = -\frac{L}{S}$$