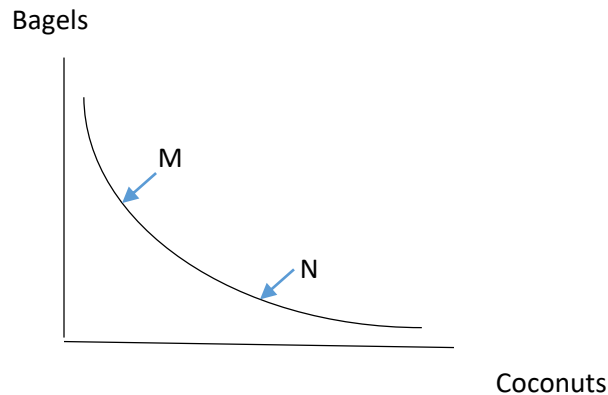


Exercise Set 8 INDIFFERENCE CURVES

The equation for an indifference curve is given by $Y = 10000/X$, where X is the amount of Good 1 (coconuts) and Y is the amount of Good 2 (bagels).

III. Questions

- Using the given equation, sketch the indifference curve with Good 1 (coconuts) on the horizontal axis.



- Indicate Point M on the curve such that the number of coconuts consumed is 20. The corresponding number of bagels is _____, and the slope of the curve at that point is _____. [Note: You may obtain both values from the calculator above.]

At point M:

$$Y = 10000/X$$

$$Y = 10000/20$$

$$Y = 500 \text{ bagels}$$

From the interactive calculator: Slope = -25 (this does not need to be calculated)

- At Point M, the consumer is willing to give up _____ bagel(s) in order to gain _____ coconut(s).
25 bagels to get 1 coconut.

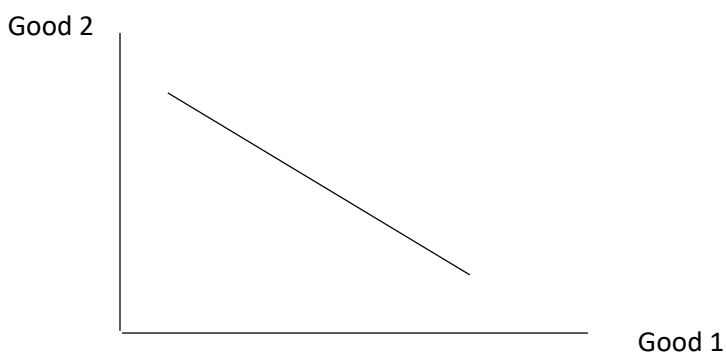
4. Consider Point N on the curve such that $X = 100$. At N, the marginal rate of substitution is _____ [*coconuts per bagel / bagels per coconut*].

The slope at point N is -1. This implies that the consumer is willing to give up 1 coconut for an extra bagel. This means that MRS is 1 coconut per bagel.

5. Does the given indifference curve exhibit the Law of Diminishing Marginal Rate of Substitution? Explain.

Yes. The indifference curve is getting flatter as X increases. This means that the consumer is willing to give up less and less of Good Y to gain an additional unit of Good X as the consumption of Good X rises.

6. Suppose the indifference curve is a negatively-sloped straight line. Using a sketch (with Good 1 on the horizontal axis), one may show that as the amount of Good 1 increases, the MRS [*decreases / increases / remains constant*].



Since the slope of the indifference curve is constant, the MRS does not change as you consume more Good 1.

7. According to the Law of Diminishing Marginal Utility, as the consumption of coconuts increases, ceteris paribus, the consumer's utility [*rises / falls*] at [*an increasing / a decreasing*] rate.

Utility rises at a decreasing rate.