

Quiz #1 (answer key)
ECNS 316
Spring 2020

Name _____

1.) Suppose Rose is a reckless driver who derives the following benefits from driving recklessly:

$$B(R)$$

where B is her benefit function and R is her chosen level of reckless driving.

a.) (5 points) What would be an appropriate assumption about the shape of her benefit function? WHY would we make this assumption?

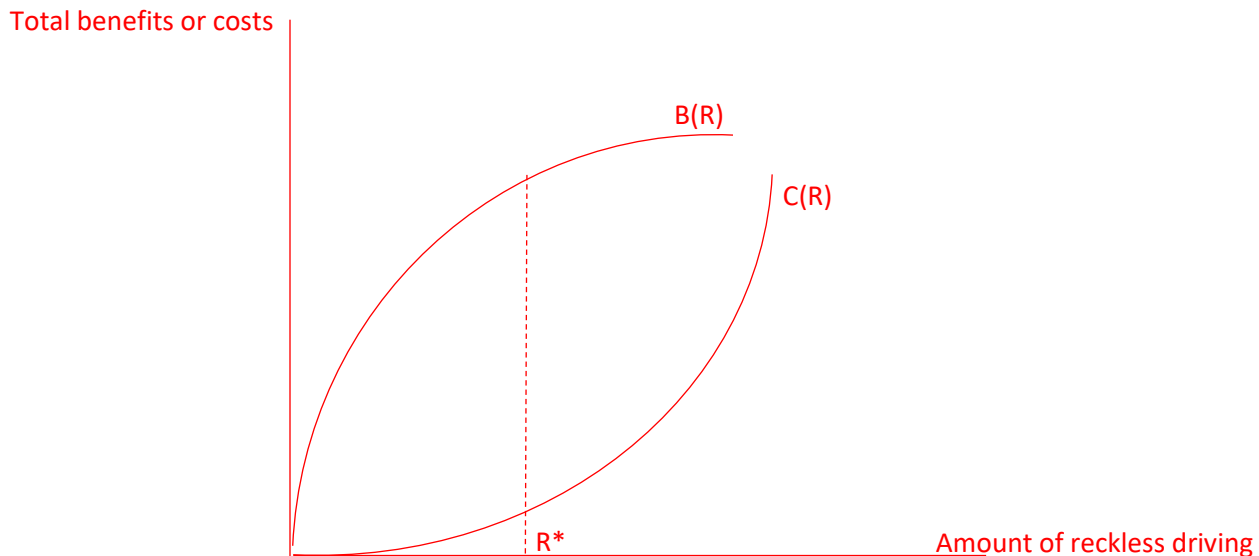
We assume that the benefit function is concave to the origin. That is, benefits are increasing in recklessness at a decreasing rate. Mathematically, this implies the following:

$$B'(R) > 0$$
$$B''(R) < 0$$

b.) (5 points) Suppose the costs that Rose imposes *on society* can be expressed by the following cost function:

$$C(R).$$

These costs include the direct costs she bears due to her own reckless driving and any other external costs she imposes on others who have to share the road with her. Assuming enforcement costs are zero, show graphically the socially optimal amount of reckless driving. (NOTE: Make sure to label your graphs...failure to do so will result in loss of points.)



2.) (5 points) Briefly describe the purpose of the sensitivity analysis conducted in McCollister et al. (2010).

They conduct their sensitivity analysis as a way to examine uncertainty in their cost estimates. For instance, they consider alternative values of a statistical life to calculate a range of homicide costs. To take another example, they consider multiple sources for criminal justice system costs.