Problem Set 1: Solutions

Demography Camp

Summer 2013

Question 1

Solve for x:

$$7 = e^{2x}$$

$$\frac{log(7)}{2} = x$$

Question 2

Solve for x:

$$8 = log(e^x)$$

$$8 = x$$

Question 3

Solve for x:

$$log(7^x) = 20$$

$$x = \frac{20}{log(7)}$$

Question 4

What is the derivative of x^2?

$$2x$$

Question 5

Solve the integral:

$$\int_0^1 x^2 dx$$

.

$$1/3$$

Question 6

Give an example of a cohort you are part of.

Those who graduated from Berkeley in 2010, those born in 1988, those who entered OPR in 2010

Question 7

If Jack dies on the last day of March and Jane survives through the whole year, what is the total number of person years they have contributed to the period.
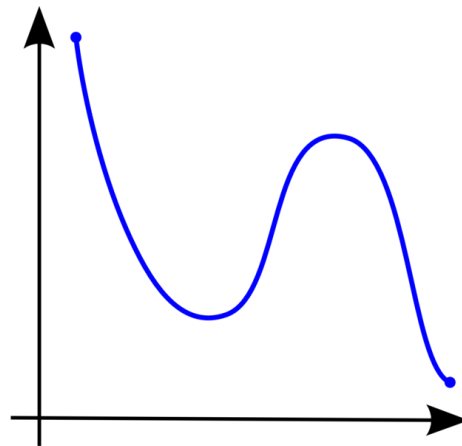
1.25 person years

Question 8

Draw an example of a non-monotonic function.

Figure 1: Nonmonotonic Function