University of Texas at Austin

Quiz #3

Continuous-dividend-paying assets. Monotonicity.

Problem 3.1. (2 points) An investor buys 10 shares of stock wich pays a continuous dividend with the dividend yield equal to 0.05. Assume continuous and immediate reinvestment of dividend into the same asset. How many shares does the investor own 2 years from the original purchase?

Problem 3.2. (2 points) An investor buys n_0 shares of continuous-dividend-paying stock with the aim of owning exactly 10 shares three later. Assume that the dividend yield is equal to 0.02. Assume continuous and immediate reinvestment of dividend into the same asset. Calculate n_0.

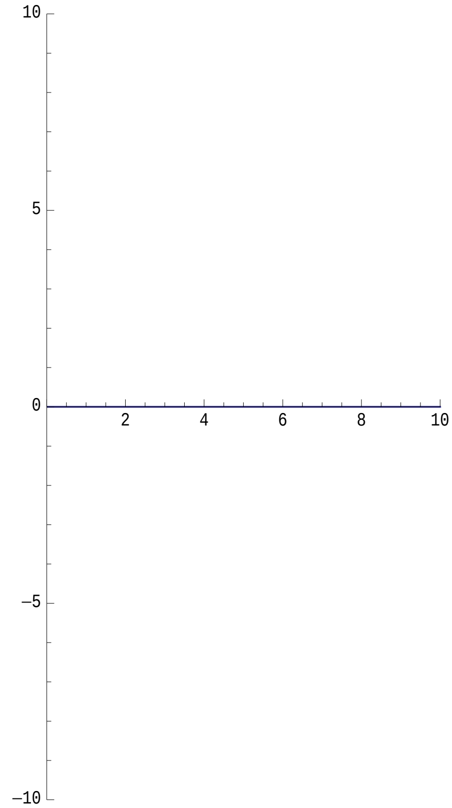
Please, provide the **complete** solution to the following problem(s):

Problem 3.3. Monotonicity.

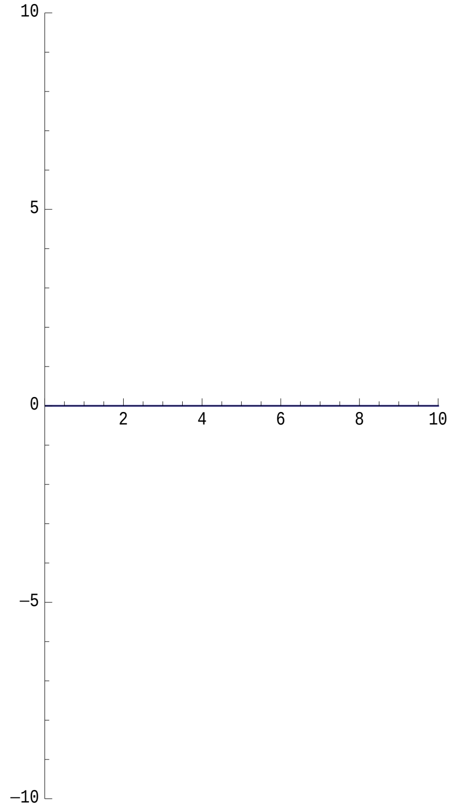
(i) (3 points) Write down the definition of an **increasing** real-valued function whose domain are all nonnegative real numbers.

(ii) (3 points) Write down the definition of an **decreasing** real-valued function whose domain are all nonnegative real numbers.

Problem 3.4. (1 point) Draw the graph of an *increasing* function in the coordinate system provided.



Problem 3.5. (1 point) Draw the graph of an *decreasing* function in the coordinate system provided.



Problem 3.6. (3 points) Draw the graph of a function which is neither decreasing nor decreasing in the coordinate system provided.