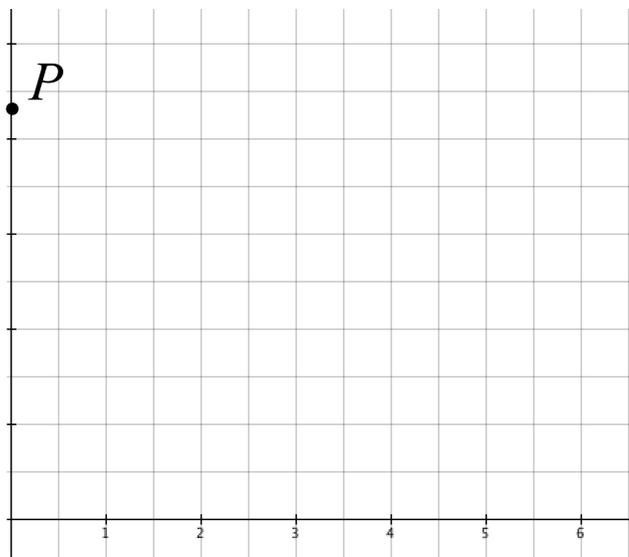
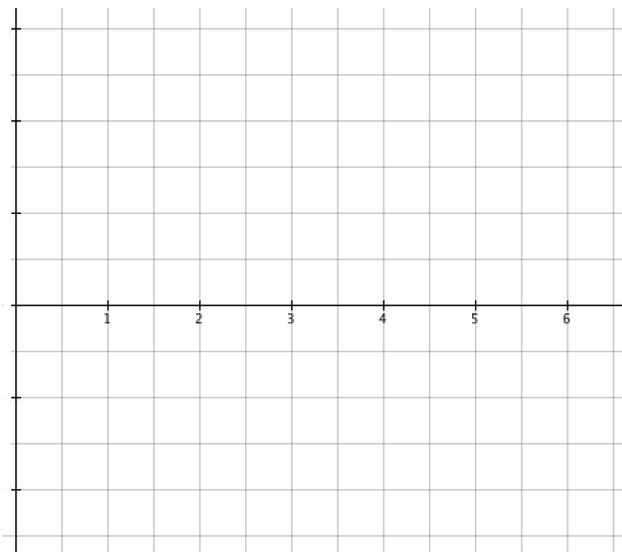


1. Problem situation: In the first two hour of a stock market trading day, the price of a certain stock in dollars decreased rapidly at a constant rate from price P . Then suddenly at 2 hours after the market opened, the price rose slowly for a short time, and continued to increase over the next 1.5 hours at an increasing rate. Then for the last 3 hours of the trading day (from 3.5 to 6.5 hours), the price of the stock stayed constant, but at a lower price than the opening price P .

The task: Make a rough sketch of the amount function and rate of change function on the sets of axes below. Before sketching the graphs, label each axis (four of them) with the appropriate units (but do *not* introduce numbers for the quantities represented on the vertical axes of the graphs).



2. Consider the accumulation function $h(a) = 2a^{3/2}$.
- a) Define h 's exact rate of change function with a closed form expression that can generate output values easily. Write your final definition without an exponent. (Your answer should be in the form of an equation with proper notation.)
- b) Use your answer in part a) to represent h 's exact rate of change function as a table of values. First label each column. Then generate the table in such a way that all entries are whole values.

Label columns:

- c) Explain what the values in the table reveal about the nature of the accumulation function h , and how the values reveal that nature.

3. Consider the amount function T and x -coordinates $a, b, c, d,$ and e as shown at the bottom of the page.

a) At each x value, estimate $r_T(x)$ based on the change in y and the change in x . Report all values to the nearest 0.5. The scales on the x and y axes are the same for this graph.

x -value: a b c d e

$r_T(x)$: _____ _____ _____ _____ _____

b) What is the largest interval of x for which the amount is increasing? (e.g. $a < x < d,$ or $x < b$) _____

Explain two different ways by which you could make this conclusion.

c) What is the largest interval of x for which is the rate of change of T increasing? _____
 Explain how you can determine this based only on the answer values from part a).

