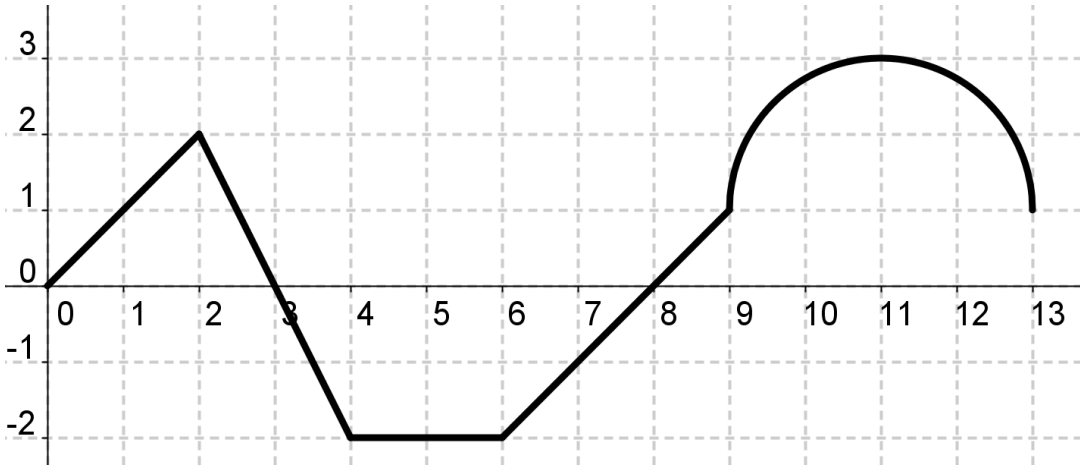
Calculus Ch. 5 Test Review

p. 399# 7-12 all, 15-33 odd, 39-55 odd, 59, 65-72

The graph below shows the velocity, v(t), at which a person is moving in feet per second. Where t is time and $0 \le t \le 13$. $9 \le t \le 13$ is a semi circle.



a) How far is the person from where they started after 5 seconds?

b) On what interval(s) was the distance increasing?

c) What was the total distance traveled on [0,13]?

d) What was the average velocity on [2,6]?

e) What is the average acceleration on [0,13]?

f) If s(t) represents the distance traveled over t seconds and s(4) = 2, find s(11).

g) According to the graph, where does s(t) have relative extrema?

h) According to the graph, where does s(t) have points of inflection?

i) Write an equation of the tangent line of s(t) when t = 4.

j) Suppose $g(x) = \int_3^x v(t)dt$ find g(1), g'(11), and g''(3)

k) What is the coordinate point of the relative extrema of the position function s(t) given that s(4)=2.

l) What is the absolute maximum and minimum of s(t)?

m) Is the person speeding up or slowing down at t = 12?

n) What is the acceleration at t = 7?

o) Does the tangent line of s(t) at t = 10 lie above or below the curve?

p) Write an equation of the tangent line of s(t) at t = 4.

The function $v(t) = 6\sin^3 x\cos^2(x-0.1)$ models a particles velocity as it travels along a line from time t = 0 to t = $\frac{5\pi}{4}$.

a) What is the particles distance from it's starting position at time t = 2?

b) What is the total distance traveled by the particle from t = 0 to t = $\frac{5\pi}{4}$?

c) If s(t) is the position function for the particle and s(3) = 5, find s(2).

d) On what interval from t = 0 to t = $\frac{5\pi}{4}$ is s(t) increasing? Explain.

e) How many points of inflection does s(t) have on [0, $\frac{5\pi}{4}$]? Explain.

The table below shows the rate r(t) at which snow is being removed from a driveway in cubic feet per minute at certain times. The snow is falling at a constant rate of 20 cubic feet per minute.

Time (minutes)	1	4	6	10	15
r(t)	4	2	11	8	20

a) Find $\int_1^{15} r(t)\,dt$ using a left side sum with the intervals given and explain it's meaning using correct units.

b) Use your answer from part "a" to find the average rate at which snow was being removed from the driveway on [1,15].

c) Write an equation q(t) that represents the rate at which snow accumulates on the driveway at any given time t. What is q(6)?

d) Write an equation b(t) that represents the amount of snow on the driveway at any given time t on the interval [1.15]. How much snow was on the driveway at t = 15?