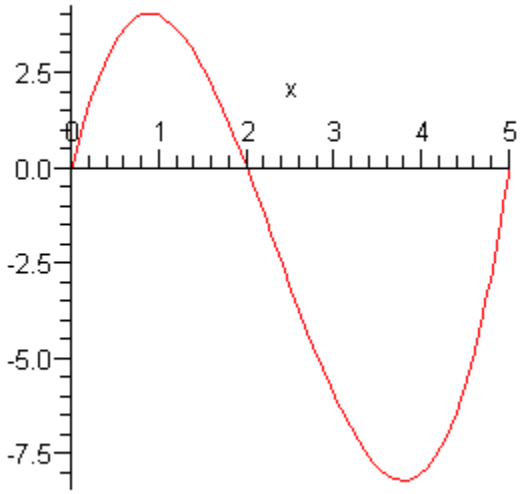
Graded Homework Set 6 -- Calculus I -- Math191 (Page reference in red)

1. A hiker walked for 5 hours along a straight path running West to East. His velocity, v (on the y axis) at time t (on the x-axis) is shown below according to the equation:

$v(t) = t^3 - 7t^2 + 10t$



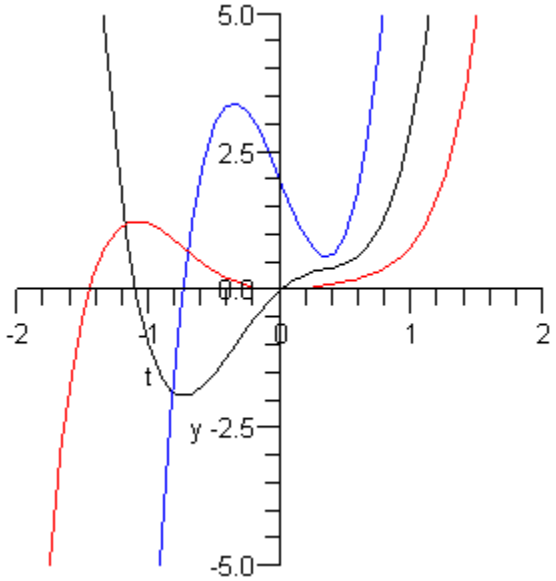
a. How far did the hiker walk in the first 2 hours?

b. How far did he walk in the last 3 hours of his walk?

c. If he started at home, how far and in what direction was he from home at the end of the 5 hours?

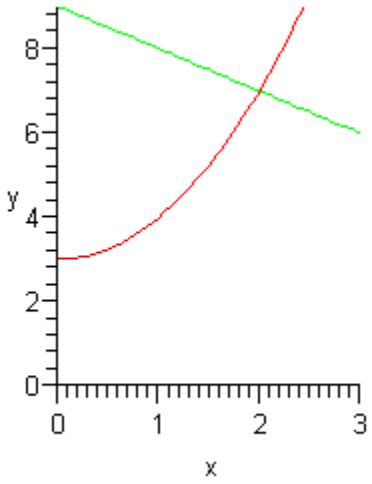
(See example 6 page 328)

2. Shown below are three functions representing displacement, s, velocity, v, and acceleration, a. Which colored curve represent displacement?



(See example 1 page 171 and 172)

Consider the region shown below in the first quadrant enclosed by $y = f(x) = 3 + x^2$ and $y = g(x) = 9 - x$ and $x = 0$.



3. Set up the definite integral and find the area of this enclosed region. (Show your work) (See example 2 page 348)

4. Only set up the integral to find the volume of this region when it is rotated about the x axis. (See example 4 page 358)

5. Only set up the integral to find the volume of this region when it is rotated about the y-axis. (See example 2 page 367)

6. Only set up the integral to find the volume obtained when the function defined in the first quadrant by $f(x) = x^2$, $g(x) = 2 - x^2$ and $x = 0$ is rotated about the line $y = 2$.

(See example 5 page 358)