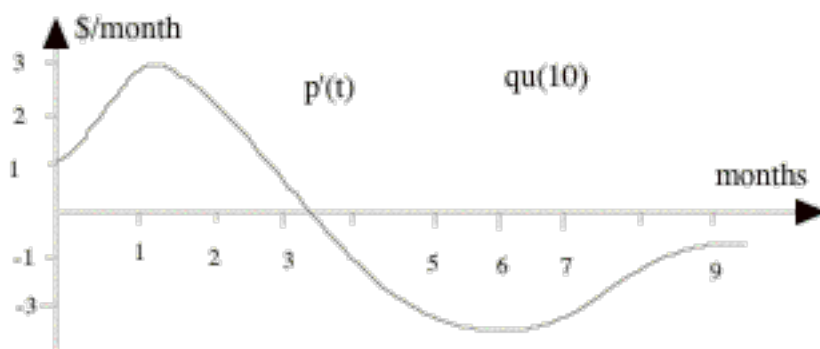
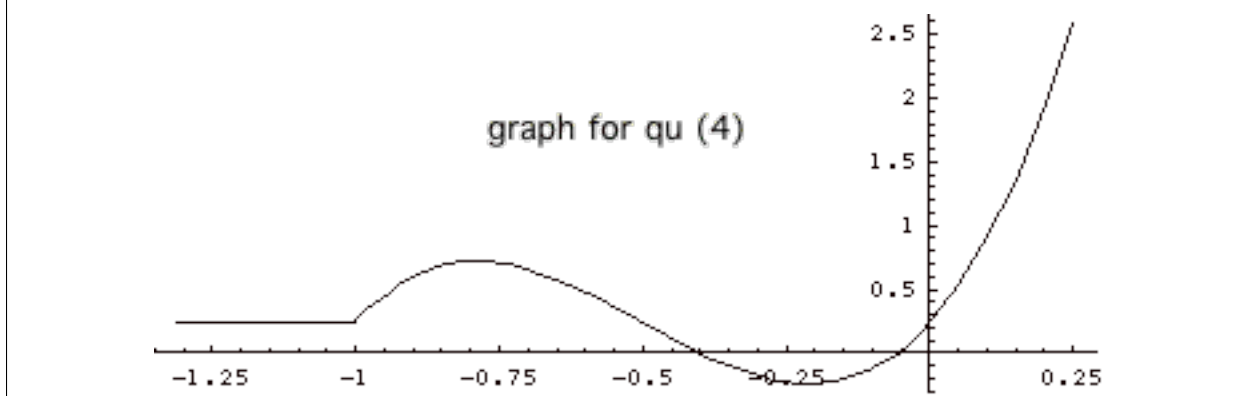


Math 34A — Week 7

24. The price of IBM stock t months after you buy is $p(t)$ dollars. Below is the graph of $p'(t)$ the derivative of $p(t)$ (it can also be found on p. 141 of your textbook). After how long should you sell for the most profit?



31. Refer to the graph above (or on page 145 of the text) for this problem. On what intervals does the graph have positive second derivative? At what points is the derivative 0?



32. The height of the water in a reservoir varies with time. After t days, the height of the water is $h(t)$ meters. If you know that $h'(30) = 1$ and $h''(30) = .5$,

- (a) If $h''(x)$ does not change, will the height of the water be rising or falling or stay constant on day 33?
- (b) If $h''(x)$ does not change, will the height of the water be rising or falling or stay constant on day 27?



57. Coca-Cola has hired you to design a new can for their soda. They will make the top of the can separately, so you are in charge of designing a cylindrical metal can with no lid. It is to have a volume of 64π in³. What height and radius should you advise in order to minimize the amount of metal used?



15. Use limits to find the derivative of the function $g(x) = C \cdot f(x)$.



Derivative Practice Find the derivative of the following expressions with respect to x .

(a) $\frac{x^2+4x+3}{\sqrt{x}}$

(b) $\left(\frac{x^2+4x+3}{\sqrt{x}}\right)'$

(c) $(5x)^4$

(d) $\frac{(5x)^4}{4!}$

(e) $\sum_{n=0}^{\infty} \frac{x^n}{n!}$

(f) e^x

(g) e^{-x}

(h) e^{cx}

