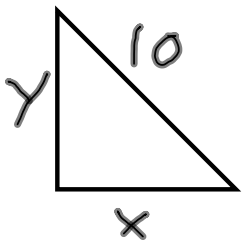
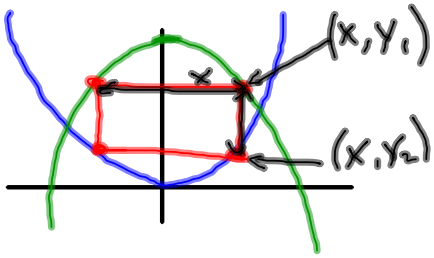
Questions from 4-4...

55. What is the maximum area of a right triangle with hypotenuse 10?



56. A rectangle is inscribed between the parabolas $y=4x^2$ and $y=30-x^2$, what is the maximum area of such a rectangle?



4.5 Linearization and Newton's Method

Ex 1) Find the linearization of $f(x) = x^2+4x+1$ at $x = 2$. Use the linearization to approximate $f(2.1)$.

Ex 2) Find the linearization of $f(x) = \ln(x+1)$ at $x = 0$. Use the linearization to approximate $f(0.1)$.

Ex 3) Find the linearization of $f(x) = e^x + \sin x$ at $x=0$. Use the linearization to approximate $f(0.1)$.

Ex 4) $y = x^3+2x^2+ x - 5$
Assume $x = 1$ and $dx = 0.05$, find dy.

Ex 5) $y = \dfrac{2x}{1+x^2}$

Assume x = -2 and dx = 0.1, find dy.

Ex 6) $2y = x^2 - xy$

Assume x = 2 and dx = -0.05, find dy.