

5d.) $Y(31.5) \approx \boxed{20.8 \text{ bushels}}$ or use y-coordinate of vertex

5e.) Draw quad funct of best Fit on scatter plot

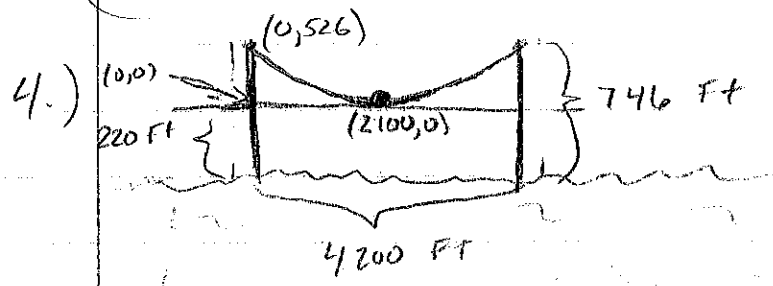
3.) $h(x) = \frac{-32x^2}{(400)^2} + x + 500$

a.) graph, then find y-coordinate of max (max height)

b.) find zero (use its x-coordinate)

$\rightarrow (5458, 0)$ 5458 Ft from base of cliff, projectile will hit water.

$\rightarrow (2500, 1750)$ 1750 Ft is max height



$f(x) = a(x-h)^2 + k$

$526 = a(0-2100)^2 + 0$

$526 = a(4410000)$

$\frac{526}{4410000} = \frac{526}{4410000}$

$f(x) = \frac{526}{4410000} (x-2100)^2 + 0$

$f(3100) = \frac{526}{4410000} (3100-2100)^2 + 0$

$f(3100) \approx 119.27 \text{ Ft}$

vertex (2100, 0)

y-int (0, [746-220]) = (0, 526)

1000 Ft from the center is 2100 + 1000 from the origin = 3100 Ft = x

Paste into Y= (use exact equation) x min -10 x max 10 x scl 10 Y min -10 Y max 50 Y scl 5
 5a.) quadratic relation w/a < 0 [plot -> stat, enter; set appropriate windows]
 5b.) STAT -> CALC -> 5: Quad Reg (Quadratic Regression)
 5c.) Find vertex -> x-coordinate is optimal amt of fertilizer
 $Y(x) = -0.0171x^2 + 1.0765x + 3.8939$
 ≈ 31.5 lbs of fertilizer per 100 ft² | Can also use $x = \frac{-b}{2a}$