Math 1314 – College Algebra

Professor: Fred khoury

Homework Sec. 1.5

1. The length and width of a rectangle have a sum of 88. What dimensions give the maximum area?

2. The number of mosquitoes $M(x)$, in millions, in a certain area depends on the June rainfall x, in inches, according to the function $M(x) = 9x - x^2$. What rainfall produces the maximum number of mosquitoes?

3. The function $f(t) = -0.1t^2 + 1.5t$ represents the yearly income (or loss) from a real estate investment, where t is time in years. After what year does income begin to decline?

4. John owns a hotdog stand. His profit is represented by $P(x) = -x^2 + 10x + 33$, with $P(x)$ being profit and x the number of hotdogs sold. What is the most he can earn?

5. A projectile is thrown upward so that its distance above the ground after t seconds is $h(t) = -16t^2 + 240t$. After how many seconds does it reach its maximum height?

1. $l = 44 \quad w = 44$	**3.** 7.5	**5.** 8 sec
2. 4.5 *in*	**4.** \$58	