Student: _____ **Instructor:** Fouad Khoury **Assignment:** Quiz 1.5
Date: _____ **Course:** Math-1314

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

- **A.** Length 35 and width 53
- **B.** Length 43 and width 45
- **C.** Length 44 and width 44
- **D.** Length 34 and width 54

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 $M(x) = 9.0x - x^2$. What rainfall produces the maximum number of mosquitoes? Round the answer to the nearest tenth.

- **A.** 81.0 in
- **B.** 0.0 in
- **C.** 4.5 in
- **D.** 9.0 in

3. The function $I(t) = -0.1t^2 + 1.5t$ 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? Round the answer to the nearest tenth.

- **A.** 15.0
- **B.** 6.5
- **C.** 7.5
- **D.** 10.0

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?

- **A.** $25
- **B.** $43
- **C.** $88
- **D.** $58

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?

- **A.** 6 sec
- **B.** 24 sec
- **C.** 18 sec
- **D.** 8 sec