Math 120 A, B - Winter 2009
Mid-Term Exam Number Two
February 26, 2009
Answers

There were two versions of the exam.

Version A - In problem 1, $g(x) = 2x + x^2$.

1.

$$h^{-1}(x) = x + 2 - 2\sqrt{x+1}.$$

2. (a) $\frac{400}{13} = 30.769...$ feet (b) No. The horizontal asymptote of this function is $y = 40$, and since the vertical asymptote is at $x = -10$, and points on the function's graph to the right of $x = -10$ are below the asymptote, we can conclude that Mr. X will never be able to jump over 40 feet.

3. (a) 58.528 m (b) 41.2105 sec

4. 17.36186 m

Version B - In problem 1, $g(x) = 3x + x^2$.

1.

$$h^{-1}(x) = x + \frac{9}{2} - \frac{1}{2}\sqrt{36x+81}.$$

2. (a) 74 feet (b) No. The horizontal asymptote of this function is $y = 90$, and since the vertical asymptote is at $x = -10$, and points on the function's graph to the right of $x = -10$ are below the asymptote, we can conclude that Mr. X will never be able to jump over 90 feet.

3. (a) 165.3806 m (b) 78.15789 sec

4. 19.3886 m