Math 120 A, B Winter 2017
Final Exam
March 11, 2017
Answers

1. 1396.54 feet

2. (a) 8.897079 and 29.179843 dollars
   (b) 19.03846 dollars

3. (a) \( y = 150 \sin\left(\frac{2\pi}{1200} (x - 100)\right) + 100 \)
   (b) 470.192 meters

4. (a) the graph is an upper semicircle, centered at (0,0) with radius 2. Domain is \(-4 \leq x \leq 4\), and range is \(0 \leq y \leq 4\).
   (b) The range is \(-5 \leq g(x) \leq 3\).
   (c) \( A = 2, B = -2 \).

5.
   \[
   \text{area}(x) = \begin{cases} 
   \frac{1}{2} \left(\frac{4}{3} x^2\right) & \text{if } 0 \leq x \leq 3, \\
   \frac{1}{2} \cdot 3 \cdot 4 + \frac{1}{2} \left(4 + \frac{4}{7} x + \frac{16}{7}\right) (x - 3) & \text{if } 3 \leq x \leq 10.
   \end{cases}
   \]

6. 66.548 years after 2000.

7. (a) 1.3659921 radians per second
   (b) 228.35704 meters