Math 165 Section A  
Professor Lieberman  
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ANSWERS TO PRACTICE THIRD IN-CLASS EXAM

Corrections added October 19.

1. You’re on your own for this one.

2. The absolute maximum is \( f(\pi) = \pi + 2 \) and the absolute minimum is \( f(-\pi/6) = -\pi/6 - \sqrt{3} \).

3. The height is 16/3 and the width is 2\( \sqrt{8/3} \).

4. (a) \( f \) is increasing on the interval \( (\pi/4, 3\pi/4) \). It’s decreasing on \( (0, \pi/4) \) and \( (3\pi/4, \pi) \).
   (b) The local maximum value is \( f(3\pi/4) = 3\pi/2 - 1 \). The local minimum value is \( f(\pi/4) = \pi/2 + 1 \).
   (c) \( f \) is concave up on \( (0, \pi/2) \) and concave down on \( (\pi/2, \pi) \). There is an inflection point at \( (\pi/2, 1) \).