

MTH 202 - Quiz 10

4 December 2015

Name: _____

Show all your work to receive full credit on the following problems; carefully organize your solutions so that the work is clear. No calculators or other electronic devices are allowed on this quiz.

1. (4 points) The minute hand of Big Ben is 14 feet long. How far does the tip of the hand travel in 15 minutes? Use an appropriate approximation of π to give your answer to the closest foot.

2. (10 points) A $10 \text{ m} \times 10 \text{ m}$ swimming pool is filled with water until it is 3 meters deep. A box measuring $5 \text{ m} \times 3 \text{ m} \times 2 \text{ m}$ is thrown into the pool and sinks until it is completely underwater. By how many centimeters does the depth of the water increase?

3. (4 points) Find the weight in grams of 0.000027 m^3 of water.

4. (7 points) In the following diagram, two quarter circles are placed inside a square. Each side of the square is exactly 1 unit long. Find the area of the shaded region in terms of pi. *Hint:* Write the square as the union of two regions.

