

# **Math 132 - Quiz 4**

September 14, 2022

Name \_\_\_\_\_

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary. This quiz is due September 19.

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1. (2 points) The graph of  $y = 3 + \sin(2x)$ ,  $0 \leq x \leq \pi$ , is rotated about the  $y$ -axis. Set up the definite integral that gives the area of the surface that is generated. Use technology to approximate the value of your integral.

2. (2 points) Repeat the problem above, but instead rotate the graph about the  $x$ -axis.

*Turn over.*

3. (3 points) A chain weighs 9.75 lb/ft. It is hanging over the side of a bridge to a length of 30 ft. Determine the work required to pull up 20 ft of the chain.

4. (3 points) A water tank has the shape of a right circular cylinder with diameter 10 ft and height 8 ft. Water weighing 62.4 pounds per cubic foot is stored in the tank to a depth of 5 ft. The water is pumped out to a platform that is 2 ft above the top of the tank. Find the amount of work required.