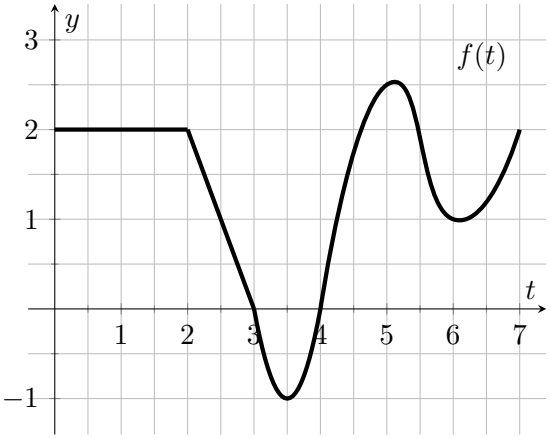
Circle your Instructor:
Faudree, Williams, Zirbes _____ / 25

Math 251 Fall 2017 **Quiz #11, November 29th**

Name: _____

There are 25 points possible on this quiz. This is a closed book quiz. Calculators and notes are not allowed. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (3 pts.) Let $g(x) = \int_0^x f(t)dt$ where the graph of $y = f(t)$ is displayed below.



(a) Find $g(3)$

(b) In the open interval $(0, 7)$, when does $g(x)$ have a maximum?

(c) When is $g(x)$ increasing?

Exercise 2. (5 pts.) Find the derivative of the function.

(a) $g(x) = \int_x^1 \cos t \, dt$

(b) $F(x) = \int_0^{x^3} \sqrt{1 + t^4} \, dt$

Exercise 3. (3 pts.) What, if anything, is wrong with the following calculation?

$$\int_0^5 \frac{1}{x-2} dx = \ln|x-2|\Big|_0^5 = \ln 3 - \ln 2$$

Exercise 4. (6 pts.) Evaluate the following integrals.

(a) $\int_0^{\pi/4} (\sec^2 t - 2e^t)\, dt$

(b) $\int_0^{1/2} \frac{4}{\sqrt{1-x^2}}\, dx$

Exercise 5. (8 pts.) Evaluate the following integrals.

(a) $\int_0^1 (v^2+2)^2 dv$

(b) $\int_1^4 \frac{(4-t)}{\sqrt{t}} dt$