Name: _____   PID: _____

- Print your *NAME* on every page and write your *PID* in the space provided above.

- Show all of your work in the spaces provided. No credit will be given for unsupported answers, even if correct.

- No calculators, tablets, phones, or other electronic devices are allowed during this exam. You may use one page of handwritten notes, but no books or other assistance.

(1 pt)   0. Follow the instructions on this exam and any additional instructions given during the exam.

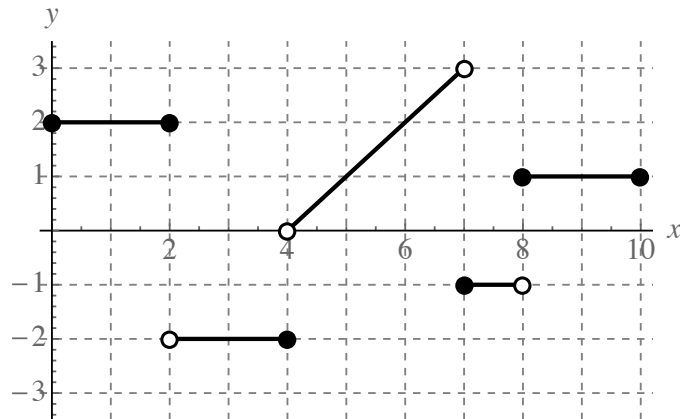(5 pt)   1. Suppose f and g are integrable functions on $\mathbb{R}$ such that $\int_0^4 f(x)\,dx = 7$ and $\int_0^4 g(x)\,dx = 5$.

     (a) What is the value of $\int_0^4 \left(2f(x) - 3g(x) \right) dx$?

     (b) If $\int_0^6 f(x)\,dx = 4$, what is the value of $\int_4^6 f(x)\,dx$?

     (c) What is the value of $\int_{-4}^0 g(|x|)\,dx$?

NAME:

(6 pt) 2. Below is the graph of the function f:

(a) Compute $\displaystyle\int_0^{10} f(x)\,dx$.

(b) Compute $\displaystyle\int_0^{10} |f(x)|\,dx$.

(c) Suppose that F is an antiderivative of f. Fill in the blank spaces in the below table.

$F(0)$	$F(2)$	$F(7)$	$F(9)$	$F(10)$
	4			

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(8 pt)   3. Evaluate the indefinite integrals:

(a) $\displaystyle\int \left(e^{-3x} + \sqrt{x} + e^3\right) dx$

(b) $\displaystyle\int \frac{4t^2 + 5t + 3}{t^2}\, dt$

(6 pt) 4. Evaluate the definite integral. Simplify as much as possible.

$$\int_0^{\pi/3} [\tan(x)]^2 \, dx$$

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(4 pt)   5. Compute the derivative: $\dfrac{d}{dx} \displaystyle\int_{\sin(x)}^{x^3} \sin(1/t)\, dt$