

Math 16a – Quiz 12

Section 113, December 4, 2007

Name:

1. Let $p(t)$ be the rate (in tons per year) at which pollutants are discharged into a lake, where $t = 0$ corresponds to the year 1990. Suppose $p(t) = \frac{10}{\sqrt{t}}$.

(a) (2 points) Compute $\int_1^9 p(t)dt$.

(b) (1 point) Give a physical interpretation of the quantity computed in part (a).

2. For any positive number z , let $A(z)$ be the area of the region under the curve $y = e^{2x} + 3$ from $-z$ to 0.

(a) (1 point) Is $A(2)$ positive or negative? (Hint: draw a picture.)

(b) (2 points) Compute $A(2)$.

(c) (Bonus: 2 points) Compute $A'(2)$. (Hint: to make sure your answer has the correct sign, figure out whether $A(z)$ should increase or decrease as z increases.)

Math 16a – Quiz 12

Section 115, December 4, 2007

Name:

1. Let $p(t)$ be the rate (in tons per year) at which pollutants are discharged into a lake, where $t = 0$ corresponds to the year 1990. Suppose $p(t) = \frac{10}{\sqrt{t}}$.

(a) (2 points) Compute $\int_4^9 p(t)dt$.

- (b) (1 point) Give a physical interpretation of the quantity computed in part (a).

2. For any positive number z , let $A(z)$ be the area of the region under the curve $y = e^{2x} + 3$ from $-z$ to 0.

- (a) (1 point) Is $A(2)$ positive or negative? (Hint: draw a picture.)

- (b) (2 points) Compute $A(2)$.

- (c) (Bonus: 2 points) Compute $A'(2)$. (Hint: to make sure your answer has the correct sign, figure out whether $A(z)$ should increase or decrease as z increases.)

Math 16a – Quiz 12

Section 117, December 4, 2007

Name:

1. Let $p(t)$ be the rate (in tons per year) at which pollutants are discharged into a lake, where $t = 0$ corresponds to the year 1990. Suppose $p(t) = \frac{10}{\sqrt{t}}$.

(a) (2 points) Compute $\int_1^4 p(t)dt$.

(b) (1 point) Give a physical interpretation of the quantity computed in part (a).

2. For any positive number z , let $A(z)$ be the area of the region under the curve $y = e^{2x} + 3$ from $-z$ to 0.

(a) (1 point) Is $A(2)$ positive or negative? (Hint: draw a picture.)

(b) (2 points) Compute $A(2)$.

(c) (Bonus: 2 points) Compute $A'(2)$. (Hint: to make sure your answer has the correct sign, figure out whether $A(z)$ should increase or decrease as z increases.)