

Calculus AB More Review Chapter 5

Due Tues 12/10 or Wed 12/11

1.
$$\frac{d}{dx} \int_2^{4x} \frac{1}{t} dt =$$

7.
$$\int_1^2 (x^5 - x^2 + 2x) dx$$

2.
$$\frac{d}{dx} \int_3^x \sin t dt =$$

8. Velocity, $v(t) = 2t - 3$, $s(1) = 5$,
Find the position, $s(t)$

3.
$$\frac{d}{dx} \int_{-x}^{3x} \frac{1}{1+t} dt =$$

9. Acceleration, $a(t) = x^2 - 3x + 1$,
 $v(0) = 0$, $s(0) = 0$
Find Position $s(t)$

4.
$$\int_1^2 (5 - 3x)^5 dx$$

10. If $\int_0^1 f(x) dx = 2$ and $\int_1^2 f(x) dx = 1$
Find the value of $\int_0^2 f(x) dx$

5.
$$\int_0^{\frac{\pi}{6}} 2 \cos 3x dx =$$

11. If $\int_0^1 f(x) dx = 7$ and $\int_0^3 f(x) dx = 6$
Find the value of $\int_1^3 f(x) dx$

6.
$$\int_1^5 |x - 2| dx =$$

12. Let $f(x) = \int_0^x t^3 dt$
Find the value of $f'(2)$

13.

$$\text{Let } f(x) = \int_0^{x^2} t^2 dt$$

Find the value of $f'(1)$

14.

$$\text{Let } f(x) = \int_x^{x^2} t^2 dt$$

Find the value of $f'(1)$

15.

The length of a rectangle is increasing at a rate of 2 feet/sec, while the width is increasing at 1 foot/sec. When the length is 5 feet and width is 3 feet, how fast is the area increasing?

16.

A cube is 4 feet on each edge. Each edge is increasing at 1 foot/sec. What is the rate of increase in Volume?