

1.(1 pt) $\int_b^{2b} x^4 dx =$

2.(1 pt) The value of $\int_0^{-6} (x-2)^2 dx$ is

3.(1 pt) The value of $\int_3^4 \frac{1}{x^2} dx$ is

4.(1 pt) Evaluate the definite integral
 $\int_2^9 (2x+6) dx$

5.(1 pt) Evaluate the definite integral
 $\int_4^5 (3x^2 - 2x + 8) dx$

6.(1 pt) Evaluate the definite integral
 $\int_{-8}^8 (64 - x^2) dx$

7.(1 pt) Evaluate the definite integral
 $\int_1^8 \frac{6x^2 + 2}{\sqrt{x}} dx$

8.(1 pt) Evaluate the definite integral
 $\int_3^5 \frac{8}{\sqrt{x}} dx$

9.(1 pt) $\int_5^7 \frac{3x^2 + 4}{x^2} dx =$

10.(1 pt) Evaluate the definite integral
 $\int_0^\pi 8 \sin(x) dx$

11.(1 pt) Evaluate the integral
 $\int_4^3 \sin(t) dt$

12.(1 pt) Evaluate the integral
 $\int_1^{\sqrt{10}} \frac{7}{1+x^2} dx$

13.(1 pt) Evaluate the integral
 $\int_0^{0.2} \frac{dx}{\sqrt{1-x^2}}$

14.(1 pt) The velocity function is $v(t) = t^2 - 6t + 8$ for a particle moving along a line. Find the displacement and the distance traveled by the particle during the time interval $[-1,6]$.

displacement = _____

distance traveled = _____

If needed, see page 405 of your textbook (378 in older books) for the definitions of these terms.

15.(1 pt) The velocity function is $v(t) = t^2 - 4t + 3$ for a particle moving along a line. Find the displacement (net distance covered) of the particle during the time interval $[-3,5]$.

displacement = _____

16.(1 pt) **Note:** You can get full credit for this problem by just answering the last question correctly. The initial questions are meant as hints towards the final answer and also allow you the opportunity to get partial credit.

The integral $\int_{-1}^5 |10x^2 - x^3 - 16x| dx$ MUST be evaluated by breaking it up into a sum of three integrals:

$$\int_{-1}^a |10x^2 - x^3 - 16x| dx +$$

$$\int_a^c |10x^2 - x^3 - 16x| dx +$$

$$\int_c^5 |10x^2 - x^3 - 16x| dx$$

where

$a =$ _____

$c =$ _____

$$\int_{-1}^a |10x^2 - x^3 - 16x| dx =$$

$$\int_a^c |10x^2 - x^3 - 16x| dx =$$

$$\int_c^5 |10x^2 - x^3 - 16x| dx =$$

Thus $\int_{-1}^5 |10x^2 - x^3 - 16x| dx =$ _____

17.(1 pt) Consider the function

$$f(x) = \begin{cases} x & \text{if } x < 1 \\ \frac{1}{x} & \text{if } x \geq 1 \end{cases}$$

Evaluate the definite integral.

$$\int_{-1}^4 f(x) dx$$