

QUESTION 1

(1 pts)

Evaluate the general indefinite integral: $\int \sqrt{x^5} dx$

A. $\frac{1}{6}x^6 + C$

C. $\frac{5}{2}x^{2/5} + C$

B. $\frac{2}{3}x^{3/2} + C$

D. $\frac{2}{7}x^{7/2} + C$

QUESTION 2

(1 pts)

Evaluate the definite integral: $\int_1^4 \sqrt{x^5} dx$

A. $\frac{254}{7}$

C. $-\frac{1365}{2}$

B. $\frac{1365}{2}$

D. $-\frac{254}{7}$

QUESTION 3

(1 pts)

Evaluate $\int_1^2 x^2 + 2x + 3 dx$

A. 2

C. $\frac{22}{3}$

B. $\frac{25}{3}$

D. $\frac{2}{3}$

QUESTION 4

(1 pts)

Suppose you are given that $g(x) = \int_x^0 1 + t^2 dt$.

How can you rewrite the above integral, so that you can use the Fundamental Theorem of Calculus part 1 to compute $g'(x)$?

A. We can't use the theorem here.

C. $-\int_0^x 1 + t^2 dt$

B. $\int_0^x 1 + t^2 dt$

D. $\int_x^0 1 + t^2 dt = \frac{x^3}{3} + x$

QUESTION 5

(1 pts)

What does the Net Change Theorem mean in words?

A. If $F(x) = \int_a^b f(x) dx$, then $\int_a^b f(x) dx$ is equal to $F(b) - F(a)$.

C. The integral of the rate of change is equal to the net change.

B. If $g'(x)$ is the antiderivative of $f(x)$, then $g'(x) = f(x)$.

D. The integral of the net change is equal to the rate of change.

QUESTION 6

(1 pts)

When can you use the substitution rule?

- A. When The Fundamental Theorem of Calculus is not valid.
- B. Only on a definite integral.
- C. Only on an indefinite integral.
- D. When you have a function, $g(x)$, and its derivative, $g'(x)$ present in the integrand.

QUESTION 7

(1 pts)

Suppose you want to use u -substitution to evaluate, $\int 2x(x^2 + 2)^2 dx$. Identify the function u .

- A. $u = 2x$
- B. $u = x^2 + 2$
- C. $u = (x^2 + 2)^2$
- D. Cannot use u -substitution.

QUESTION 8

(1 pts)

Rewrite the integral in question 7 after doing u -substitution.

- A. $\int u^2 du$
- B. $\int u^2 dx$
- C. $\int 4x^2 du$
- D. $\int 4x^2 dx$

QUESTION 9

(1 pts)

Again, suppose you want to use u -substitution to evaluate, $\int (2x^3 + 1)^7 (2x^2) dx$. Identify the function u .

- A. Cannot use u -substitution.
- B. $u = 2x^3 + 1$
- C. $2x^2$
- D. $u = (2x^3 + 1)^7$

QUESTION 10

(1 pts)

Rewrite the integral in question 9 after doing u -substitution.

- A. $\int u^7 du$
- B. $\frac{1}{3} \int u^7 dx$
- C. $\int u^7 (2x^2) du$
- D. $\frac{1}{3} \int u^7 du$