

Evaluate the followings **Integrals..**

$$1) \int_1^3 -9x \, dx =$$

$$2) \int_1^3 \frac{8}{x^2} \, dx =$$

$$3) \int_1^3 -6x^{-4} \, dx =$$

$$4) \int_1^3 (-3x+4) \, dx =$$

$$5) \int_1^2 \left( \frac{1}{2}x - 12x^5 \right) dx =$$

$$6) \int_1^4 \left( -4x^3 + 2\sqrt{x} + 4 \right) dx =$$

$$7) \int_0^1 \left( x^3 + 8x^7 - 6x - 2 \right) dx =$$

$$8) \int_1^2 \left( -x + 4\frac{3}{x^4} \right) dx =$$

$$9) \int_1^9 \frac{4}{\sqrt{x}} \, dx =$$

$$10) \int_0^9 2\sqrt{x^3} \, dx =$$

$$12) \int_1^4 5\sqrt{x^6} \, dx =$$

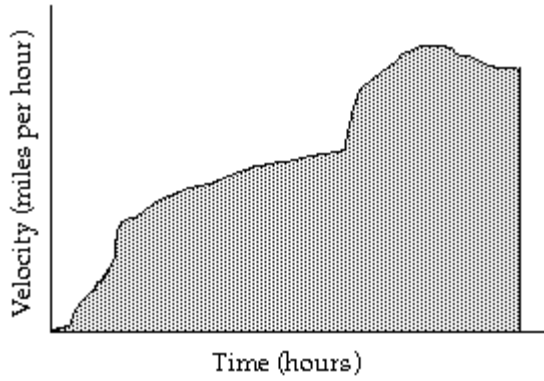
$$13) \int_0^1 6e^{-3x} \, dx =$$

$$14) \int_0^1 -10e^{5x} \, dx =$$

State what the shaded area represents.

1)

1) \_\_\_\_\_

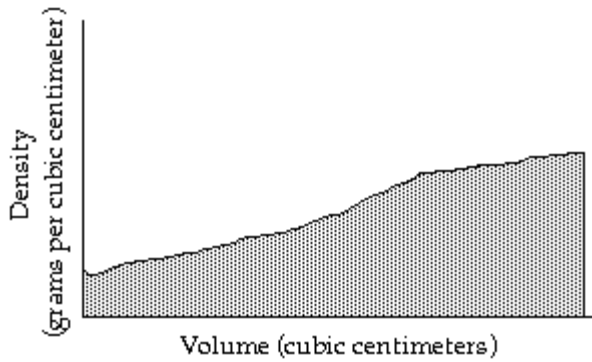


- A) Final velocity in miles per hour
- C) Acceleration in miles per hour per hour

- B) Position in miles from starting point
- D) Distance traveled in miles

2)

2) \_\_\_\_\_

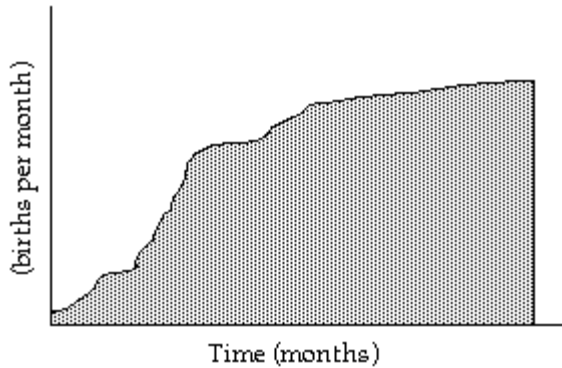


- A) Mass per unit volume
- C) Total mass in grams

- B) Total volume
- D) Area in square centimeters

3)

3) \_\_\_\_\_

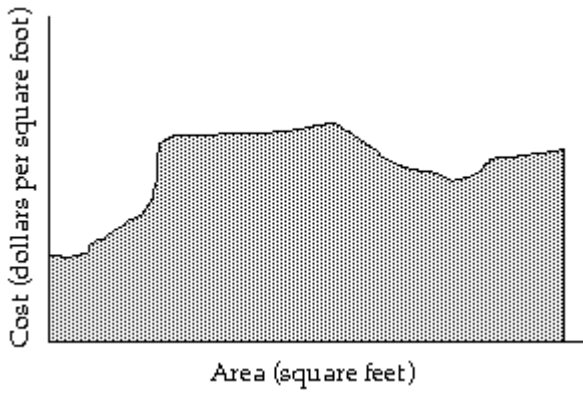


- A) Total increase in population
- C) Rate of change of population

- B) Total time elapsed
- D) Total number of births

4)

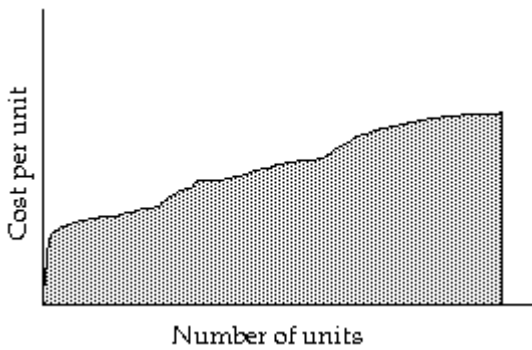
4) \_\_\_\_\_



- A) Total cost in dollars
- B) Rate of change of area
- C) Rate of change of price
- D) Total area in square feet

5)

5) \_\_\_\_\_



- A) Total number of units
- B) Rate of change of cost
- C) Total cost
- D) Cost per unit

**Find the area under the graph of the function over the interval given.**

6)  $y = 2x + 7$ ;  $[1, 5]$

6) \_\_\_\_\_

- A) 18
- B) 9
- C) 26
- D) 52

7)  $y = x^2 - 6x + 9$ ;  $[2, 4]$

7) \_\_\_\_\_

- A)  $\frac{4}{3}$
- B)  $\frac{7}{3}$
- C)  $\frac{1}{3}$
- D)  $\frac{2}{3}$

8)  $y = -x^2 + 9$ ;  $[0, 3]$

8) \_\_\_\_\_

- A) 18
- B) 0
- C) 27
- D) 36

9)  $y = x^2 + 1$ ;  $[0, 1]$

9) \_\_\_\_\_

- A)  $\frac{4}{3}$
- B)  $\frac{2}{3}$
- C)  $\frac{5}{3}$
- D)  $\frac{1}{3}$

10)  $y = \frac{9}{x}$ ;  $[1, 8]$

10) \_\_\_\_\_

- A)  $\ln 72$
- B)  $8 \ln 9$
- C)  $\ln 8$
- D)  $9 \ln 8$

11)  $y = e^x$ ;  $[-9, 3]$

A)  $e^3 + e^9$

B)  $e^3 - e^9$

C)  $e^3 - \frac{1}{e^9}$

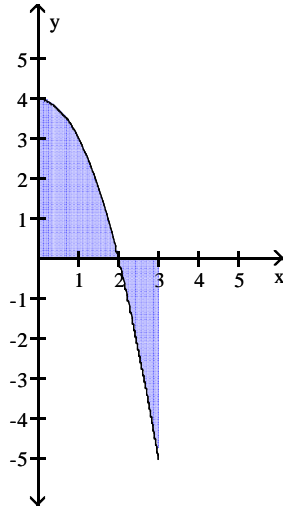
D)  $e^{12}$

11) \_\_\_\_\_

Evaluate the definite integral and interpret the result.

12)  $\int_0^3 (4 - x^2) dx$

12) \_\_\_\_\_



A)  $\frac{23}{3}$ ; the shaded area above the x-axis minus the shaded area below the x-axis is equal to  $\frac{23}{3}$ .

B)  $\frac{23}{3}$ ; the total shaded area is equal to  $\frac{23}{3}$ .

C) 3; the shaded area above the x-axis minus the shaded area below the x-axis is equal to 3.

D) 5; the total shaded area is equal to 5.

## Answer Key

Testname: INTEGRAL

- 1) D
- 2) C
- 3) D
- 4) A
- 5) C
- 6) D
- 7) D
- 8) A
- 9) A
- 10) D
- 11) C
- 12) C