Quiz Review Report

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**Subject: Calculus** 

Score: 0 / 10

Accuracy: 0.00%

Submit Date: June 5th 2025, 4:35 PM

- 1. Evaluate the limit:  $\lim (x->2) (x^2 + 3x 10) / (x 2)$ 
  - A) 7
  - B) 0
  - C) Undefined
  - D) 1

## Yoor Answer:

### **Correct Answer: 7**

### Explanation:

Factor the numerator as (x-2)(x+5). Cancel (x-2) and evaluate the limit of (x+5) as x approaches 2.

2. Find the derivative of  $f(x) = \sin(2x) * \cos(x)$ 

A)  $2\cos(2x)\cos(x) - \sin(2x)\sin(x)$ 

### cos(2x)cos(x) - sin(2x)sin(x)

- C)  $2\cos(2x)\cos(x) + \sin(2x)\sin(x)$
- D)  $-2\cos(2x)\cos(x) \sin(2x)\sin(x)$

Your Answer: B

Correct Answer: 2cos(2x)cos(x) - sin(2x)sin(x)



Use the product rule: (uv)' = u'v + uv'. u = sin(2x), v = cos(x). u' = 2cos(2x), v' = -sin(x).

### 3. What is the integral of $+x^e^(x^2) dx$ ?

- A)  $e^{(x^2)} + C$
- B)  $0.5 * e^{(x^2)} + C$
- C)  $2 * e^{(x^2)} + C$
- D)  $x^2 * e^(x^2) + C$

Your Answer: A

**Correct Answer: 0.5 \* e^(x^2) + C** 

Explanation:

substitution.

integral

becomes 0.5 "+e^u du = 0.5 \* e^u + C = 0.5



4. Find the critical points of the function  $f(x) = x^3 - 6x^2 + 5$ 



4

B) 
$$x = 2, x = 3$$

C) 
$$x = -2$$
,  $x = -3$ 

D) 
$$x = 1, x = 5$$

Your Answer: C

Correct Answer: x = 0, x = 4

### **Explanation**:

Find the derivative  $f'(x) = 3x^2 - 12x$ . Set f'(x) = 0 and solve for x: 3x(x-4) = 0, so x = 0 or x = 4.

### 5. Determine if the series " (n=1 to ") 1/

# diverges.

- A) Converges
- B) Diverges

### C) Cannot be determined

### D) Oscillates

Your Answer: B

Correct Answer: Converges

### **Explanation:**

This is a p-series with p = 2. A p-series converges if p > 1 and diverges if p <= 1. Since 2 > 1, the series converges.

### 6. What is the area between the curve y =

## x^and the xaxis from x = 0 to x = 2?



D) 16/3

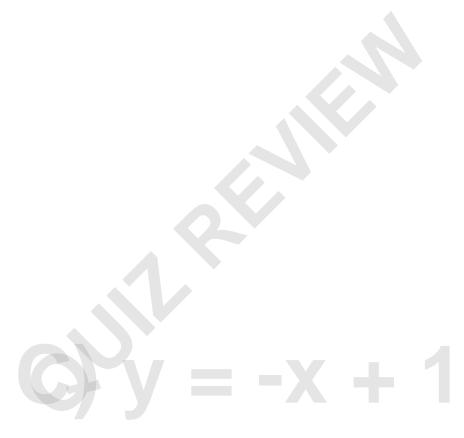
Your Answer: A Correct Answer: 8/3

### Explanation:

Integrate  $x^2$  from 0 to 2: "+(0 to 2)  $x^2$  dx = [ $x^3/3$ ] from 0 to 2 = (8/3) - 0 = 8/3.

7. Find the equation of the tangent line to the curve  $y = x^3 - 2x + 1$  at the point (1, 0).

A) 
$$y = x - 1$$
  
B)  $y = x + 1$ 



D) y = -x - 1

Your Answer: C

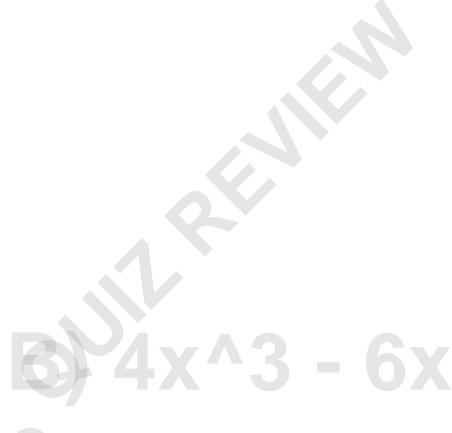
Correct Answer: y = x - 1

### Explanation:

Find the derivative  $y' = 3x^2 - 2$ . Evaluate y' at x = 1:  $y'(1) = 3(1)^2 - 2 = 1$ . The tangent line has slope 1 and passes through (1, 0). Using point-slope form:  $y - 0 = 1(x - 1) \Rightarrow y = x - 1$ .

8. Find the second derivative of  $f(x) = x^4 - 3x^2 + 2x - 5$ 

A) 12x^2 - 6



+ 2

C) 12x^2 - 6x

D) 4x^3 - 6

Your Answer: B

Correct Answer: 12x^2 - 6

**Explanation:** 

First derivative:  $f'(x) = 4x^3 - 6x + 2$ . Second derivative:  $f''(x) = 12x^2 - 6$ .

9. Evaluate the definite integral: "+(0 to



A) 0

B) 1

C) -1

D) < ó

Your Answer: A Correct Answer: 1

### **Explanation**:

The integral of cos(x) is sin(x). Evaluate sin(x) from 0 to < o# sin(< <math>o"' O 6-af' = 1 - 0 = 1.

### 100Determine whether the function f(x) =

### x^3+ sin(x) is even, odd, or neither.



### D) Both

Your Answer: C

Correct Answer: Odd

### Explanation:

A function is even if f(-x) = f(x) and odd if f(-x) = -f(x).  $f(-x) = (-x)^3 + \sin(x) = -x^3 - \sin(x) = -(x^3 + \sin(x)) = -f(x)$ . Therefore, the function is odd.