YUKON CALCULUS 12 (MCALC12) · UNIT B · 10 QUESTIONS

Differentiation Rules — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 $\frac{d}{dx}\sin(x^2)$ is

- A $2x\cos(x^2)$
- B $\cos(x^2)$
- C $x\cos(x^2)$
- D $-2x\cos(x^2)$

Understand It with Pulse | Flag a mistake

2 $\frac{d}{dx}e^{-x}$ is

- A e^{-x}
- B $-e^{-x}$
- C e^{x}
- D $-e^{x}$

Understand It with Pulse | Flag a mistake

3 $\frac{d}{dx}$ tan x is

A $\sec^2 x$

B $\csc^2 x$

C $-\sec^2 x$

D $\tan^2 x$

Understand It with Pulse | Flag a mistake

4 $\frac{d}{dx}$ ln($3x^2$) is

A $\frac{3}{x^2}$

B $\frac{1}{x}$

C $\frac{2}{x}$

D $\frac{3}{x}$

Understand It with Pulse | Flag a mistake

5 For $x^3 + y^3 = 8$, the value of $\frac{dy}{dx}$ is

- **A** $-\frac{x^2}{y^2}$
- **B** $\frac{x^2}{y^2}$
- **C** $-\frac{y^2}{x^2}$
- **D** $\frac{y}{x}$

Understand It with Pulse | Flag a mistake

6 If f(x) = sin x, then f''(x) is

- **A** cos x
- **B** -sin x
- **C** sin x
- **D** -cos x

Understand It with Pulse | Flag a mistake

7 **If $f(x) = x^3 + 2x$, then $f''(2)$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **The tangent to $f(x) = x^2 - 4x$ is horizontal when x equals**

A 0

B 4

C 2

D -2

Understand It with Pulse | Flag a mistake

9 For $y = x^2$, the slope of the normal line at the point (1, 1) is

- **A** 2
- **B** $-\frac{1}{2}$
- **C** $\frac{1}{2}$
- **D** -2

Understand It with Pulse | Flag a mistake

10 If $f(x) = \sqrt{x^2 + 3}$, then $f'(1)$ is

- **A** 1
- **B** $\frac{1}{2}$
- **C** $\frac{1}{4}$
- **D** 2

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. B
3. A
4. C
5. A
6. B
7. 12
8. C
9. B
10. B

© 2026 Brett Robbins. All Rights Reserved.