

Chapter 5 Practice Test

Directions:

This is a 20-question practice test. It does not count toward your overall score, and you may take it as many times as you choose. Once you've completed a take, click on the **Guide** button in the **Results** section below for a study guide covering the questions that you missed.

1) QID: 23561

If $\sin x = 1/3$, what is $\cos x$?

- 1/3
- 1/9
- $\sqrt{3}/3$
- $2\sqrt{2}/3$

2) QID: 23564

What is the derivative of $f(x) = x \sin x$?

- $\sin x - x \cos x$
- $\sin x$
- $-x \cos x$
- $\sin x + x \cos x$

3) QID: 23567

Compute the derivative of the function

$$f(x) = \cot(2x - 1)?$$

- $-2 \sin(2x - 1)$
- $2 \csc^2(2x - 1)$
- $-2 \csc^2(2x - 1)$
- $-\csc^2(2x - 1)$

4) QID: 23569

Compute the derivative of the function

$$f(x) = \tan(2x + 1).$$

- $\sec^2(2x + 1)$
- $2 \sin^2(2x + 1)$
- $-2 \sec^2(2x + 1)$
- $2 \sec^2(2x + 1)$

SAMPLE

5) QID: 23571

What is the derivative of the function

$$f(x) = \sin^3 x + \sec^3 x?$$

- $3\sin^2 x \cos x + 3\sec^2 x$
- $3\sin^2 x \cos x + 3\sec^3 x \tan x$
- $3\sin^2 x \cos x - 3\sec^3 x \tan x$
- $3\sin^2 x \cos x + 3\sec^2 x \tan x$

6) QID: 23574

What is the derivative of the function

$$f(x) = \frac{x \sin x + 1}{\cos x}?$$

- $\frac{\sin x + x \cos x}{\cos^2 x}$
- $\frac{\sin x \cos x + x \cos 2x - x \sin 2x + \sin x}{\cos^2 x}$
- $\frac{\sin x \cos x + x}{\cos^2 x}$
- $\frac{\sin x \cos x + x + \sin x}{\cos^2 x}$

7) QID: 25885

What is the derivative of $f(x) = e^{2x}$?

SAMPLE

- e^{2x}
- $2e^{2x}$
- $2e^2$
- $2e^x$

8) QID: 25887

What is the derivative of $y = xe^x + x^2$?

- $e^x + xe^x + 2x$
- $2e^x + x$
- $xe^x + x$
- $xe^x + 2x$

9) QID: 25891

What is the derivative of $f(x) = \frac{e^x + e^{-x}}{2}$?

- $\frac{e^x + e^{-x}}{2}$
- e^{-x}
- $e^x + e^{-x}$
- $\frac{e^x - e^{-x}}{2}$

10) QID: 25893

What is the derivative of the function

$$f(x) = \frac{e^x - 1}{x^2 + 1}?$$

- $\frac{x^2 e^x - 2x}{(x^2 + 1)^2}$
- $\frac{x^2 e^x - 2x e^x + e^x + 2x}{(x^2 + 1)^2}$
- $\frac{x^2 e^x + 2x e^x + e^x - 2x}{(x^2 + 1)^2}$
- $\frac{x e^x + 2x}{(x^2 + 1)^2}$

11) QID: 25896

What is the derivative of the function $f(x) = e^x \sin x$?

- $e^x \cos x + e^x \sin x$
- $e^x \cos x$
- $e^x \cos x - e^x \sin x$
- $e^x \cos x + \sin x$

12) QID: 25899

What is the derivative of the function $f(x) = e^{x+1} - 1$?

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- e^x
- e^{x+1}
- $e^{x+1}(x+1)$
- $e^x + 1$

13) QID: 25901

What is the derivative of the function $f(x) = \frac{x \sin x}{e^x - 1}$?

- $\frac{(\sin x + x \cos x)(e^x - 1) - x(e^x - 1) \sin x}{(e^x - 1)^2}$
- $\frac{(\sin x + x \cos x)(e^x - 1) + x e^x \sin x}{(e^x - 1)^2}$
- $\frac{(\sin x + x \cos x)(e^x - 1) - x e^x \sin x}{(e^x - 1)^2}$
- $\frac{(e^x - 1) \sin x - x e^x \sin x}{(e^x - 1)^2}$

14) QID: 26024

What is the derivative of $f(x) = \ln 2x$?

- $1/2x$
- $(1/2)x$
- $2/x$
- $1/x$

15) QID: 26042

What is the derivative of $f(x) = 2^x$?

- 2^{x-1}
- $2^x \ln 2$
- 2^x
- 2^{x+1}

16) QID: 26045

What is the derivative of $y = x \ln x - x$?

- $\ln x + 1$
- $x \ln x$
- $\ln x - 1$
- $\ln x$

17) QID: 26048

What is the derivative of the function
 $f(x) = \sin x (e^x) - \cos x (e^{2x})$?

- $e^x \cos x + e^x \sin x - e^{2x} \sin x + 2e^{2x} \cos x$
- $e^x \cos x + e^x \sin x + e^{2x} \sin x - 2e^{2x} \cos x$
- $e^x \cos x + e^{2x} \sin x$
- $e^x \sin x - 2e^{2x} \cos x$

SAMPLE

18) QID: 26066

What is the derivative of the function
 $f(x) = x^x$?

- x^{x-1}
- $x^x \ln x$
- x^x
- $x^x (\ln x + 1)$

19) QID: 26068

What is the derivative of the function
 $f(x) = \sqrt{\ln 2x}$?

- $\frac{1}{\sqrt{\ln 2x}}$
- $\frac{1}{2\sqrt{\ln 2x}}$
- $\frac{1}{2x\sqrt{\ln 2x}}$
- $\frac{2}{x\sqrt{\ln 2x}}$

What is the derivative of the function
 $f(x) = \ln(x + \ln x)$?

- $\frac{1}{x(x + \ln x)}$
- $\frac{x}{x + \ln x}$
- $\frac{1}{x + \ln x}$
- $\frac{1}{x + \ln x} \left(1 + \frac{1}{x}\right)$

SAMPLE