

Derivatives of Trigonometric Functions

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the derivative.

1) $y = \frac{8}{x} + 6 \sec x$ 1) _____

A) $y' = -\frac{8}{x^2} + 6 \tan^2 x$

B) $y' = -\frac{8}{x^2} - 6 \csc x$

C) $y' = \frac{8}{x^2} - 6 \sec x \tan x$

D) $y' = -\frac{8}{x^2} + 6 \sec x \tan x$

2) $s = t^5 \tan t - \sqrt{t}$ 2) _____

A) $\frac{ds}{dt} = -t^5 \sec^2 t + 5t^4 \tan t + \frac{1}{2\sqrt{t}}$

B) $\frac{ds}{dt} = t^5 \sec^2 t + 5t^4 \tan t - \frac{1}{2\sqrt{t}}$

C) $\frac{ds}{dt} = t^5 \sec t \tan t + 5t^4 \tan t - \frac{1}{2\sqrt{t}}$

D) $\frac{ds}{dt} = 5t^4 \sec^2 t - \frac{1}{2\sqrt{t}}$

3) $y = \frac{2}{\sin x} + \frac{1}{\cot x}$ 3) _____

A) $y' = 2 \cos x - \csc^2 x$

B) $y' = -2 \csc x \cot x + \sec^2 x$

C) $y' = 2 \csc x \cot x - \csc^2 x$

D) $y' = 2 \csc x \cot x - \sec^2 x$

4) $y = \frac{6}{\sin x} + \frac{1}{\cot x}$ 4) _____

A) $y' = -6 \csc x \cot x + \sec^2 x$

B) $y' = 6 \cos x - \csc^2 x$

C) $y' = 6 \csc x \cot x - \csc^2 x$

D) $y' = 6 \csc x \cot x - \sec^2 x$

5) $s = t^7 - \csc t + 2$ 5) _____

A) $\frac{ds}{dt} = 7t^6 + \csc t \cot t$

B) $\frac{ds}{dt} = 7t^6 + \cot^2 t$

C) $\frac{ds}{dt} = 7t^6 - \csc t \cot t$

D) $\frac{ds}{dt} = t^6 - \cot^2 t + 2$

6) $r = 9 - \theta^3 \cos \theta$ 6) _____

A) $\frac{dr}{d\theta} = 3\theta^2 \sin \theta - \theta^3 \cos \theta$

B) $\frac{dr}{d\theta} = -3\theta^2 \cos \theta + \theta^3 \sin \theta$

C) $\frac{dr}{d\theta} = 3\theta^2 \cos \theta - \theta^3 \sin \theta$

D) $\frac{dr}{d\theta} = 3\theta^2 \sin \theta$

7) $s = t^8 - \csc t + 18$

A) $\frac{ds}{dt} = 8t^7 + \cot^2 t$

C) $\frac{ds}{dt} = 8t^7 - \csc t \cot t$

B) $\frac{ds}{dt} = 8t^7 + \csc t \cot t$

D) $\frac{ds}{dt} = t^7 - \cot^2 t + 18$

7) _____

8) $p = \frac{\sec q + \csc q}{\csc q}$

A) $\frac{dp}{dq} = \sec^2 q + 1$

C) $\frac{dp}{dq} = \sec q \tan q$

B) $\frac{dp}{dq} = -\csc q \cot q$

D) $\frac{dp}{dq} = \sec^2 q$

8) _____

Solve the problem.

9) Find the tangent to $y = \cos x$ at $x = \frac{\pi}{2}$.

A) $y = 1$

B) $y = x + \frac{\pi}{2}$

C) $y = -x - \frac{\pi}{2}$

D) $y = -x + \frac{\pi}{2}$

9) _____

10) Find the tangent to $y = 2 - \sin x$ at $x = \pi$.

A) $y = -x + \pi - 2$

B) $y = x - \pi + 2$

C) $y = x - 2$

D) $y = -x + 2$

10) _____

11) Find the tangent to $y = \cot x$ at $x = \frac{\pi}{4}$.

A) $y = 2x + 1$

B) $y = 2x - \frac{\pi}{2} + 1$

C) $y = -2x + \frac{\pi}{2} + 1$

D) $y = -2x + \frac{\pi}{2}$

11) _____

Answer Key

Testname: DERIVATIVES OF TRIGONOMETRIC FUNCTIONS

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