

# Corrective Assignment

**Find the derivative of the following.**

1.  $f(x) = 4 - \csc(2x)$

2.  $g(x) = 2 \sin x + 3 \cos(x^2)$

3.  $f(\theta) = -\tan^2(2\theta)$

4.  $h(x) = \csc(\pi x)$

5.  $y = 2 \sin^2(3x) + x^2$

6.  $f(\theta) = \sqrt{4 \sec(2\theta)}$

7.  $y = 2x \sin x$

8.  $f(t) = t^2 \cos(2t)$

9.  $f(x) = 5\sqrt{\cos(x^2)}$

**Evaluate the derivative at the point.**

10.  $f(x) = \sin\left(\frac{1}{2}x\right)$

$f'\left(\frac{\pi}{2}\right) =$

11.  $g(x) = 4\cos(x)$

$g'\left(\frac{\pi}{2}\right) =$

12.  $y = -\csc^2(x)$

$\frac{dy}{dx}\bigg|_{x=\frac{\pi}{6}}$

13.  $h(x) = 8 - \tan x$

$h'\left(\frac{\pi}{3}\right) =$

Write the equation of the tangent line at the point given.

14.  $f(x) = -\cos(3x) + 4$  at  $x = \frac{\pi}{2}$

15.  $y = \sec\left(\frac{x}{2}\right)$  at  $x = \frac{\pi}{2}$

16.  $h(x) = 4 - \tan^2 x$  at  $x = \frac{\pi}{3}$

17.  $g(x) = \sin^2(2x)$  at  $x = \frac{\pi}{8}$

## ANSWERS TO CORRECTIVE ASSIGNMENT

1. $y' = 2\csc(2x)\cot(2x)$	2. $g'(x) = 2\cos x - 6x\sin x^2$	3. $f'(\theta) = -4\tan(2\theta)\sec^2(2\theta)$
4. $h'(x) = -\pi\csc(\pi x)\cot(\pi x)$	5. $y' = 12\sin(3x)\cos(3x) + 2x$	6. $f'(\theta) = \frac{4\sec(2x)\tan(2x)}{\sqrt{4\sec(2x)}}$
7. $y' = 2\sin(x) + 2x\cos(x)$	8. $f'(t) = 2t\cos(2t) - 2t^2\sin(2t)$	9. $\frac{-5x\sin(x^2)}{\sqrt{\cos(x^2)}}$
10. $\frac{\sqrt{2}}{4}$	11. $-4$	12. $8\sqrt{3}$
13. $-4$	14. $y - 4 = -3\left(x - \frac{\pi}{2}\right)$	15. $y - \sqrt{2} = \frac{\sqrt{2}}{2}\left(x - \frac{\pi}{2}\right)$
16. $y - 1 = -8\sqrt{3}\left(x - \frac{\pi}{3}\right)$	17. $y - \frac{1}{2} = 2\left(x - \frac{\pi}{8}\right)$	