

Name: _____

Calculus

Derivative Progression N: Find the slope at the given x-value

Find the derivative of each function ($\frac{dy}{dx}$)

1) $y = \cos x$; $x = \frac{3\pi}{2}$

9) $y = \frac{1}{24}(x^2 + 17)^{\frac{3}{2}}$; $x = 8$

2) $y = x^2$; $x = 1$

10) $y = \sin^{-1} x$; $x = \sqrt{\frac{99}{100}}$

3) $y = \ln x^6$; $x = 2$

11) $y = \frac{(x+1)^3 - x^3 + (x-1)^3}{3}$; $x = 3$

4) $y = xe^{x-3}$; $x = 3$

12) $y = x^3$; $x = 2$

5) $y = 4\sqrt{x^2 + 3x}$; $x = 1$

13) $y = e^{10x} + 2\sqrt{x + \frac{1}{9}}$; $x = 0$

6) $y = \frac{x^3}{21} - x$; $x = 7$

14) $y = \ln e^{7x^2}$; $x = 1$

7) $y = \frac{x^3}{3} + \frac{x^2}{2} + x$; $x = 2$

15) $y = 5 \sin^3(x + \pi)$; $x = -\frac{\pi}{2}$

8) $y = 2 \tan x$; $x = \frac{\pi}{3}$

16) $y = \frac{x^4}{2}$; $x = 2$