Implicit Differentiation

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

Use implicit differentiation to find dy/dx.

1) $x^6 = \cot y$ 1) _____

A) $-\frac{6x^5}{\csc^2 y}$ B) $-\frac{6x^5}{\csc y \cot y}$ C) $\frac{\csc^2 y}{6x^5}$ D) $\frac{6x^5}{\csc^2 y}$

2) $2xy - y^2 = 1$ 2) _____

A) $\frac{x}{x - y}$ B) $\frac{y}{x - y}$ C) $\frac{y}{y - x}$ D) $\frac{x}{y - x}$

3) $xy + x = 2$ 3) _____

A) $-\frac{1 + y}{x}$ B) $\frac{1 + y}{x}$ C) $\frac{1 + x}{y}$ D) $-\frac{1 + x}{y}$

4) $x = \sec(4y)$ 4) _____

A) $\frac{1}{4}\sec(4y)\tan(4y)$ B) $\frac{1}{4}\cos(4y)\cot(4y)$

C) $\cos(4y)\cot(4y)$ D) $4\sec(4y)\tan(4y)$

5) $\cos xy + x^5 = y^5$ 5) _____

A) $\frac{5x^4 + x \sin xy}{5y^4}$ B) $\frac{5x^4 - y \sin xy}{5y^4 + x \sin xy}$

C) $\frac{5x^4 + y \sin xy}{5y^4 - x \sin xy}$ D) $\frac{5x^4 - x \sin xy}{5y^4}$

At the given point, find the slope of the curve , as requested.

6) $y^4 + x^3 = y^2 + 10x$, slope at (0, 1) 6) _____

A) - 3 B) $\frac{5}{3}$ C) 5 D) $\frac{5}{2}$

At the given point, find the slope of the curve, as requested.

7) $4x^2y - \pi \cos y = 5\pi$, slope at $(1, \pi)$ 7) _____

A) $-\frac{\pi}{2}$ B) π C) 0 D) -2π

At the given point, find the slope of the curve , as requested.

8) $x^4y^4 = 16$, slope at (2, 1) 8) _____

A) $-\frac{1}{4}$ B) –8 C) 2 D) $-\frac{1}{2}$

At the given point, find the equation of the tangent line, as requested.

9) $y^5 + x^3 = y^2 + 9x$, tangent at $(0, 1)$ 9) _____

A) $y = \frac{9}{5}x + 1$ B) $y = -\frac{9}{5}x - 1$ C) $y = -\frac{9}{7}x$ D) $y = 3x + 1$

10) $6x^2y - \pi \cos y = 7\pi$, tangent at $(1, \pi)$ 10) _____

A) $y = -2\pi x + 3\pi$ B) $y = -2\pi x + \pi$

C) $y = \pi x$ D) $y = -\frac{\pi}{2}x + \frac{3\pi}{2}$

Answer Key
Testname: IMPLICIT DIFFERENTIATTION

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