## 19 Lecture - MTH101

## Important Mcqs

What is the formula for finding the derivative of an implicit function?
A. $d y / d x=f^{\prime}(x)$
B. $d x / d y=f^{\prime}(y)$
C. $d y / d x=-f^{\prime}(x) / f^{\prime}(y)$
D. $d x / d y=-f^{\prime}(y) / f^{\prime}(x)$

Answer: C

What is the first step in implicit differentiation?
A. Solve for x
B. Solve for y
C. Differentiate both sides with respect to x
D. Differentiate both sides with respect to y

Answer: C

What is the derivative of $y^{\wedge} \mathbf{2}$ with respect to $x$ using implicit differentiation?
A. 2 y
B. $2 x y$
C. 2 yx
D. 0

Answer: C

What is the derivative of $\mathbf{x}^{\wedge} \mathbf{2}+y^{\wedge} \mathbf{2}=\mathbf{2 5}$ with respect to $\mathbf{x}$ using implicit differentiation?
A. $d y / d x=-x / y$
B. $d y / d x=-y / x$
C. $d y / d x=x / y$
D. $d y / d x=y / x$

Answer: A

What is the second derivative of $y^{\wedge} \mathbf{2}=x^{\wedge} 3$ using implicit differentiation?
A. $d^{\wedge} 2 y / d x^{\wedge} 2=-2 x / y$
B. $d^{\wedge} 2 y / d x^{\wedge} 2=-y / 2 x$
C. $\mathrm{d}^{\wedge} 2 \mathrm{y} / \mathrm{dx}^{\wedge} 2=2 \mathrm{x} / \mathrm{y}$
D. $d^{\wedge} 2 y / d x^{\wedge} 2=y / 2 x$

Answer: B

What is the derivative of $\sin \left(x^{\wedge} 2+y^{\wedge} 2\right)$ using implicit differentiation?
A. $\cos \left(x^{\wedge} 2+y^{\wedge} 2\right)$
B. $2 x \cos \left(x^{\wedge} 2+y^{\wedge} 2\right)$
C. $2 \mathrm{y} \cos \left(\mathrm{x}^{\wedge} 2+\mathrm{y}^{\wedge} 2\right)$
D. $2(\mathrm{x}+\mathrm{y}) \cos \left(\mathrm{x}^{\wedge} 2+\mathrm{y}^{\wedge} 2\right)$

Answer: D

What is the derivative of $y^{\wedge}(1 / 2)$ using implicit differentiation?
A. $(1 / 2) y^{\wedge}(-1 / 2)$
B. $(1 / 2) y^{\wedge}(1 / 2)$
C. $(1 / 2) y^{\wedge}(3 / 2)$
D. $(1 / 2) y^{\wedge}(2)$

Answer: A

What is the derivative of $x^{\wedge} 2 y^{\wedge} 3+x y=6$ using implicit differentiation?
A. $d y / d x=-2 x / 3 y$
B. $d y / d x=-3 y / 2 x$
C. $d y / d x=-2 y / 3 x$
D. $d y / d x=-3 x / 2 y$

## Answer: C

What is the equation of the tangent line to $x^{\wedge} 2+y^{\wedge} 2=16$ at the point ( 3 , -sqrt(7)) using implicit differentiation?
A. $\mathrm{y}=2 \mathrm{x}-\operatorname{sqrt}(7)$
B. $\mathrm{y}=2 \mathrm{x}+\operatorname{sqrt}(7)$
C. $y=-2 x-\operatorname{sqrt}(7)$
D. $y=-2 x+\operatorname{sqrt}(7)$

Answer: D

What is the derivative of $\ln (x y)$ using implicit differentiation?
A. $(1 / \mathrm{x})+(1 / \mathrm{y})$
B. $\left(y / x^{\wedge} 2\right)+\left(x / y^{\wedge} 2\right)$
C. $(1 / y)+\left(x / y^{\wedge} 2\right)$
D. $(1 / x)+\left(y / x^{\wedge} 2\right)$

Answer: C

