Example 1. Find the slope of tangent to the circle $x^2 + y^2 = 25$ at the point $(4, -3)$.

Example 2. Find $\dfrac{dy}{dx}$ for each of the following equations:

1. $3y^2 = x$.

2. $x^2y^2 = 1$.

3. $x^2y = 4$.

Example 3. Find dy/dx implicitly if $3x^2 + 4x^3y^4 + 2y = 4$.

Example 4. Find the slope of tangent to the graph of the equation

$$x^2 - 3xy + y^2 + 4x - 2y = 1 \, ,$$

at the point $(1, 4)$.

Example 5. Find the equations of the tangent and normal lines to the parabola $y^2 = 3x$ at the point $(3, -3)$.