

Quiz 5 Solutions

1. If $y^3 + 2y - 1 = x$, evaluate dy/dx at $x = 2$, $y = 1$.

Differentiate implicitly to get $(3y^2 + 2)y' = 1$. For $y = 1$, this gives $y' = 1/5$.

2. Differentiate the function $y = (1 + x)^{(1-x)}$.

$$\ln y = (1 - x) \ln(1 + x),$$

$$y'/y = -\ln(1 + x) + \frac{1 - x}{1 + x},$$

$$y' = (1 + x)^{(1-x)} \left(-\ln(1 + x) + \frac{1 - x}{1 + x} \right).$$