1. Let \( y = \cos(\pi x + \ln(x)) \). Find \( \frac{dy}{dx} \).

2. Let \( x^2e^y = x \cos(y) \). Find \( \frac{dy}{dx} \).

3. A right triangle is growing. The legs have lengths \( x \) and \( y \) (which change with time \( t \)). If at a certain time, \( x = 5 \), \( y = 6 \), \( \frac{dx}{dt} = 3 \) and \( \frac{dy}{dt} = 10 \) find the rate at which the area of the triangle is increasing at this time.