Exercise 1 (6 points)
A stone is dropped into a lake, creating a circular ripple that travels outward at a speed of 60cm/s. Find the rate at which the area within the circle is increasing after 1s and after 3 s.

Exercise 2 (4 points)
Differentiate the function \[ y = \frac{1 + \sin x}{x + \cos x} \] (show all your steps)
Exercise 1 (4 points)

Prove that \[ \frac{d}{dx} (\sec x) = \sec x \tan x \] (show all your steps)

Exercise 2 (6 points)

A stone is dropped into a lake, creating a circular ripple that travels outward at a speed of 60cm/s. Find the rate at which the area within the circle is increasing after 2s and after 4s.