

NAME: _____ ID: _____ Section: _____

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**)

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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.