

Name _____ Date _____

Instructions: Please show all of your work as partial credit will be given where appropriate, **and** there may be no credit given for problems where there is no work shown. All answers should be completely simplified, unless otherwise stated.

Note – There are problems on both sides of the page.

1. (8 points) Find $\frac{dy}{dx}$ for $4y^3 - 3\sqrt{xy} = x^2 + 5$

(You need to at least get $\frac{dy}{dx}$ by itself, but don't simplify past that.)

Answer 1: _____

(Note: #2 is on the back side!!!)

2. (7 points) The area of an equilateral triangle is decreasing at a rate of 2 square

centimeters per second. Find the rate at which the length of a side is changing when the area of the triangle is $100\sqrt{3}$ square centimeters. (*Hint:* Area of an equilateral triangle is given by $A = \frac{\sqrt{3}}{4}x^2$ where x is the side length.)

Answer 2: _____