

Math 241 Fall 2017

Quiz 3

Name: \_\_\_\_\_

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise. Turn in when done.

**1.** (5 points) A spherical snowball is placed in the sun. The sun melts the snowball so that its radius decreases  $\frac{1}{4}$  in. per hour. Find the rate of change of the volume with respect to time at the instant the radius is 4 in. (The volume of a sphere is given by  $V = \frac{4}{3}\pi r^3$ . Don't forget units!)

**2.** (5 points) Find  $\frac{dy}{dx}$  for the equation  $x^2 - xy + y^2 = 7$ .