

**NAME:**

**NetID:**

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**MATH 285 E1/F1 Exam 1 (A)      September 19, 2014      Instructor: Pascaleff**

Problem	Possible	Actual
1	20	
2	20	
3	20	
4	20	
5	20	
Total	100	

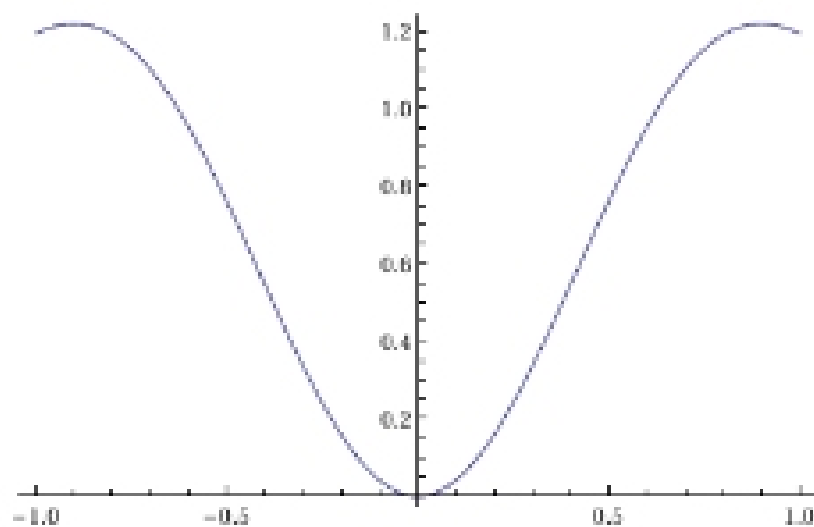
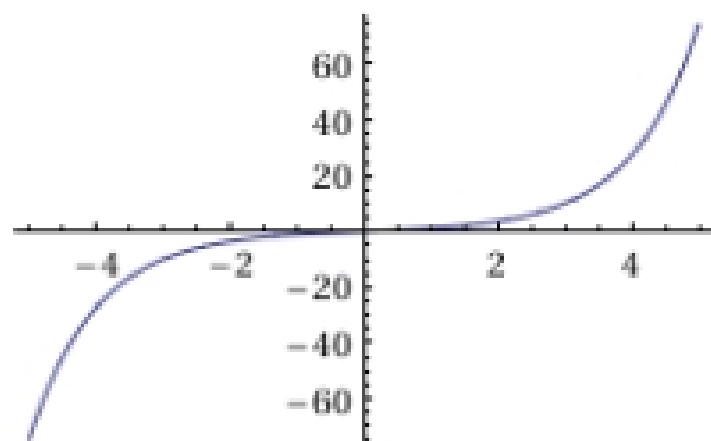
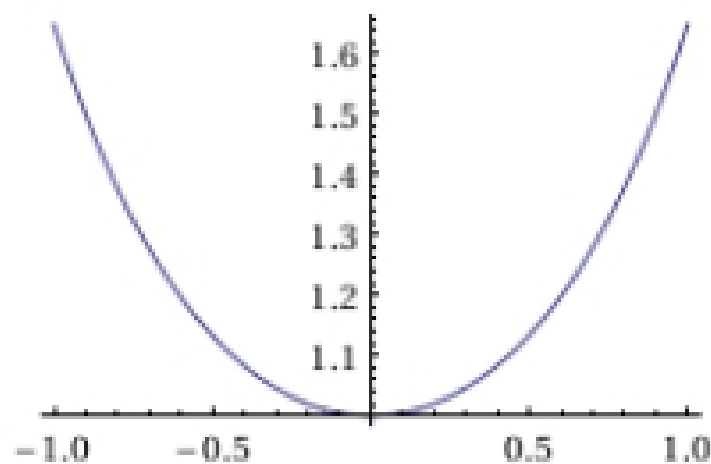
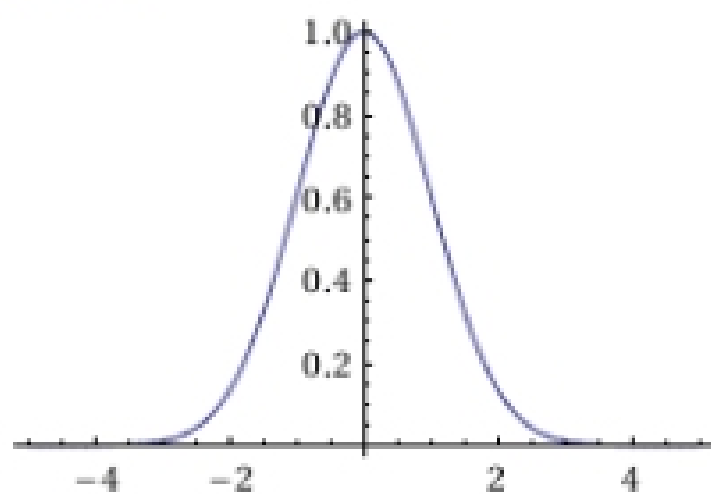
**INSTRUCTIONS:**

- Do all work on these sheets.
- Show all work.

1. (20 points) Consider the differential equation

$$\frac{dy}{dx} = xy$$

Which of the following graphs could be a solution curve of this equation? Circle all that apply.



2. (20 points) An object moves along a one-dimensional axis. Its motion is described by a function  $x(t)$ . It is subjected to an acceleration given by

$$a(t) = 1 + \pi \sin(\pi t).$$

Suppose that at  $t = 0$ , the velocity is zero:  $v(0) = 0$ . What is the net change in position between  $t = 0$  and  $t = 1$ ? That is, what is  $x(1) - x(0)$ ?