MATH 232 Name: _____
Instructor: E.M. Kiley
May 5, 2017 Section **(circle one)**: 01 (10 a.m.) 02 (1 p.m.)

Exam 3

ATTENTION:

I) This exam consists of 7 pages and is printed front-and-back on 4 sheets of paper, with 5 total problems, including 4 required problems and 1 bonus. Make sure you have the correct number of pages and problems.

II) No books, notes, calculators, or other tools may be used on the exam.

III) **Show all work clearly and in logical order**. Explain your answers using full English sentences. A correct answer without appropriate work will receive little or no credit.

IV) Simplify your answers as much as you can without a calculator, and show all your work.

V) You will find scrap paper in the front of the classroom, and you are to use *only* this paper for your scratch work; do not use any of your own paper.

VI) If you have scrap paper that you would like to submit along with your exam, then please use the stapler at the front of the classroom to attach it to your work.

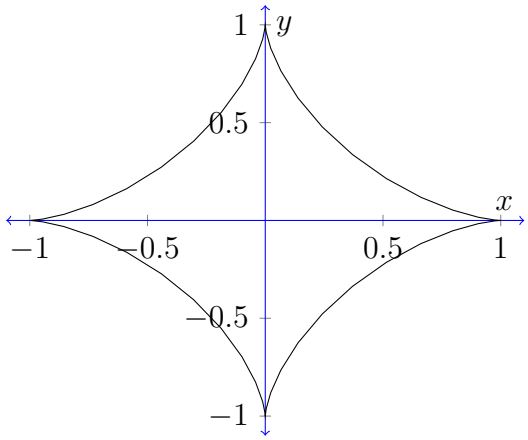
VII) The exam time will be two hours. **Good luck!**

Problem	**Score**
1 (8 pts)	
2 (24 pts)	
3 (7 pts)	
4 (10 pts)	
5 (12 BONUS pts)	
TOTAL (49 pts)	

Problem 1. **[8 points]** Lorem ipsum

(a) Consider the astroid shown in the figure below, and defined by the equations

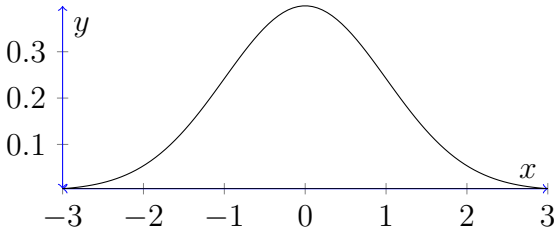
$$x = \cos^3 t, \qquad y = \sin^3 t, \qquad 0 \le t \le 2\pi.$$



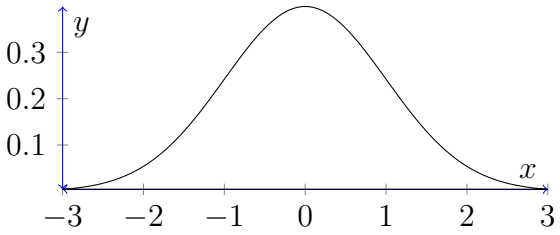
(b) Subsequent parts of a multipart problem

Problem 2. **[24 points]** A whole bunch of cute little normal curves

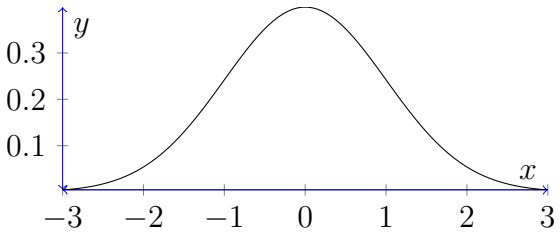
(a) $P(X > 1.5)$ or $P(X > 2)$



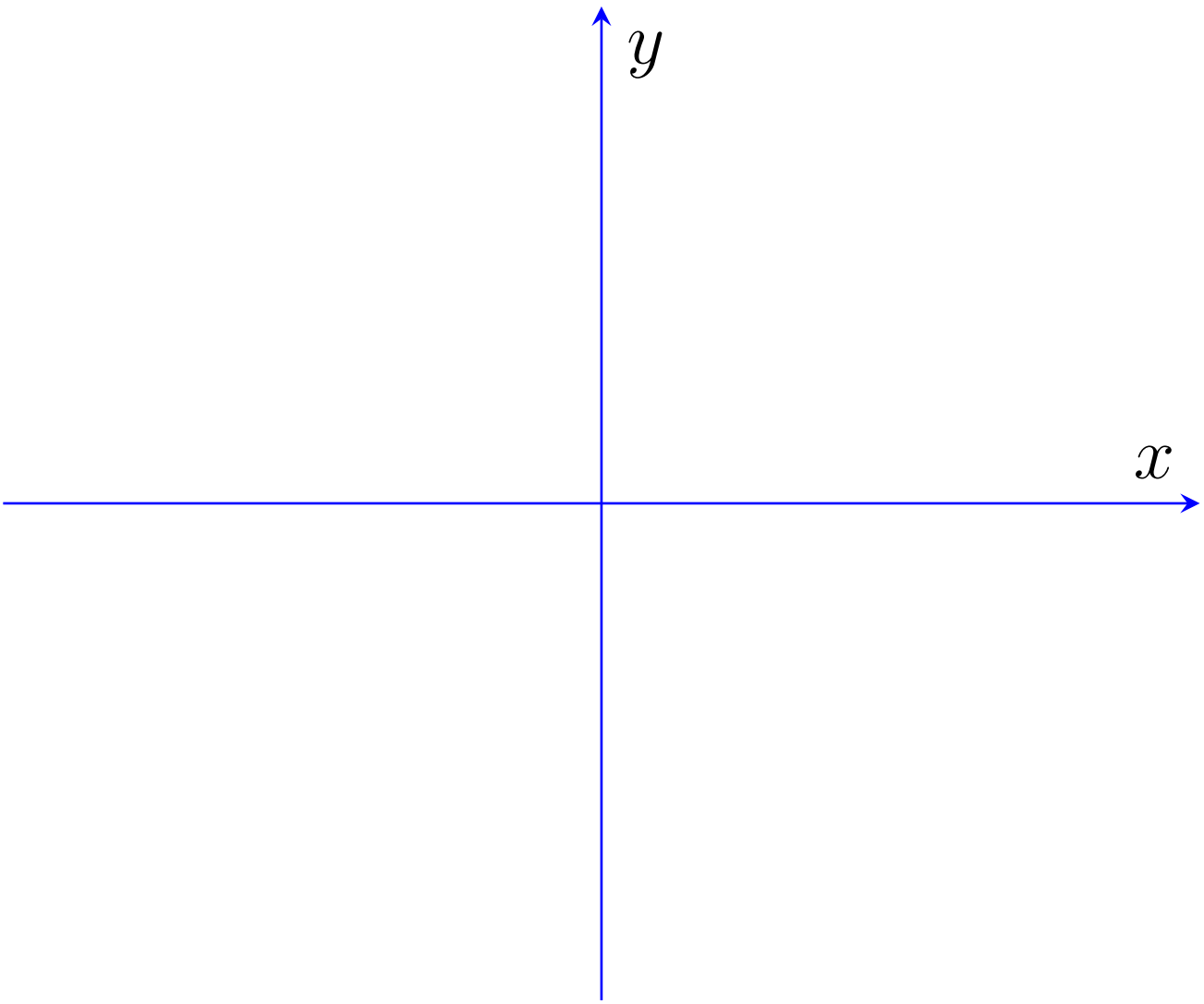
(b) $P(X < -1.5)$ or $P(X < -2)$



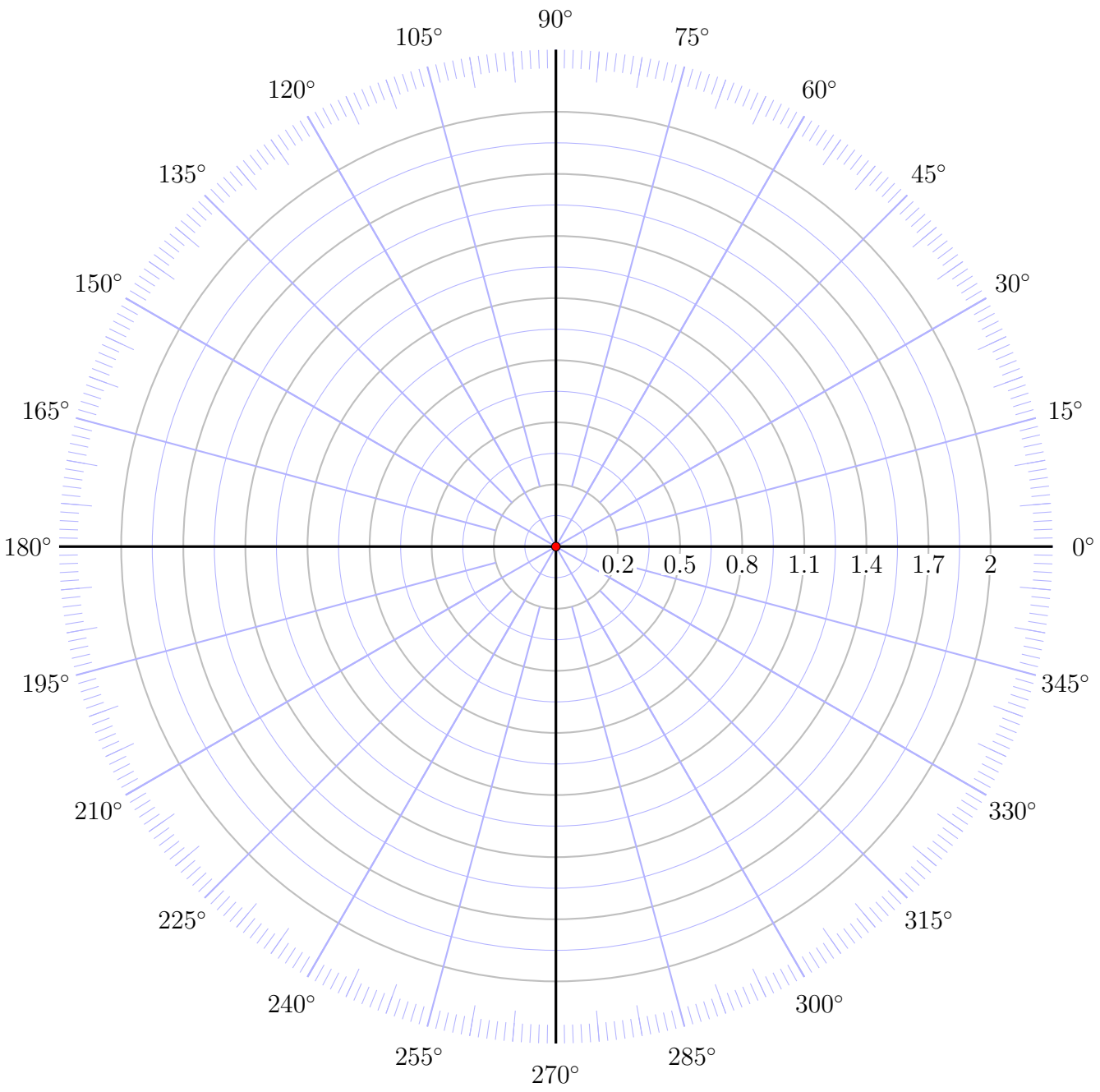
(c) $P(X > 1)$ or $P(X < -1.5)$



Problem 3. **[7 points]** Graph paper for cartesian coordinates:

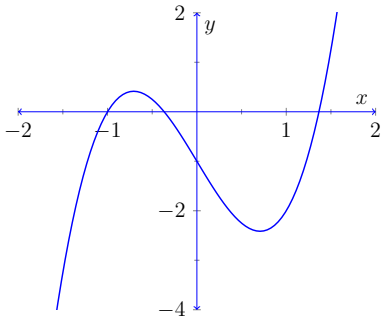


Problem 4. [10 points] Graph paper for polar coordinates:

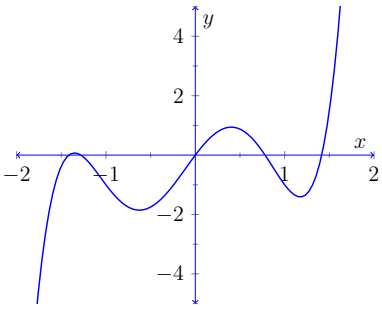

90°
75°
60°
45°
30°
15°
0°
345°
330°
315°
300°
285°
270°
255°
240°
225°
210°
195°
180°
165°
150°
135°
120°
105°
0.2
0.5
0.8
1.1
1.4
1.7
2

Problem 5. [12 bonus points] I like problems that involve lots of little graphs

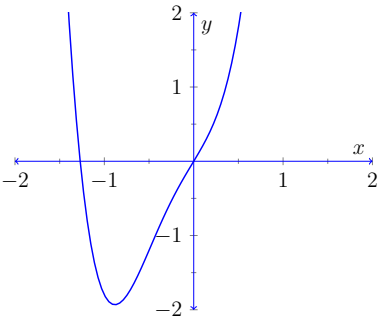
Function 1



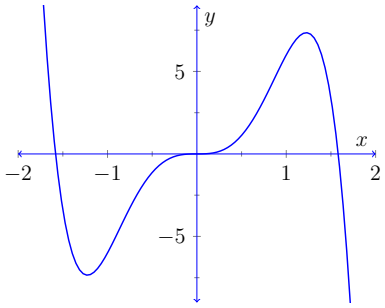
Function 2



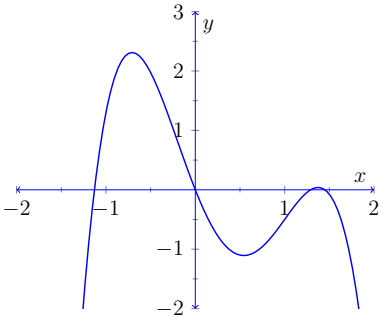
Function 3



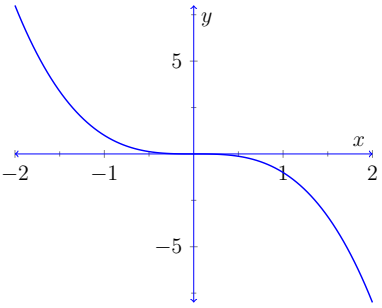
Function 4



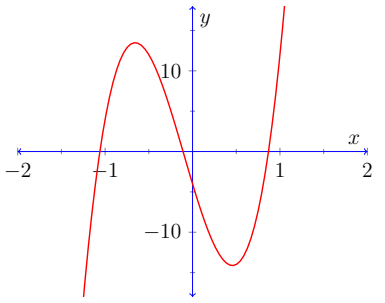
Function 5



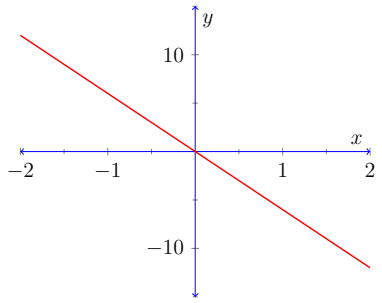
Function 6



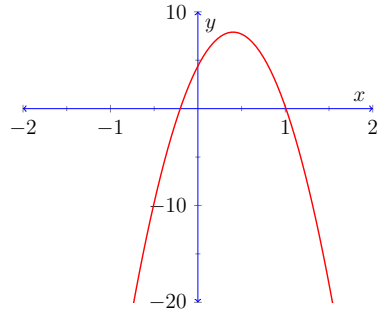
Second Derivative A



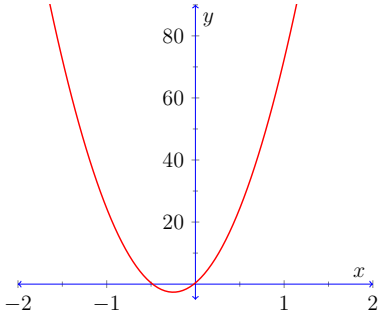
Second Derivative B



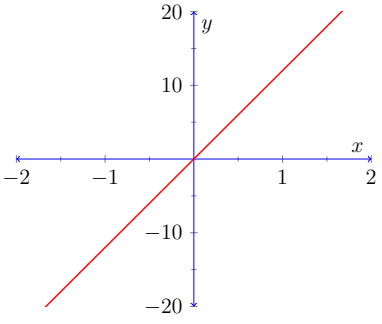
Second Derivative C



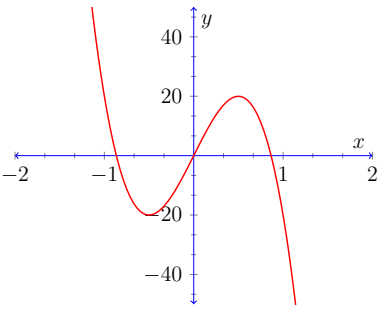
Second Derivative D



Second Derivative E



Second Derivative F



Function 1 matches Second Derivative ____

Function 2 matches Second Derivative ____

Function 3 matches Second Derivative ____

Function 4 matches Second Derivative ____

Function 5 matches Second Derivative ____

Function 6 matches Second Derivative ____