MATH 25 **MIDTERM 1** **October 1, 2015**

Name: _____ **Score:** _____ / 100

Student ID: _____

DO NOT OPEN THE EXAM UNTIL YOU ARE TOLD TO DO SO

	1	2	3	4	5	6	Total
✓							
Score							

INSTRUCTIONS FOR STUDENTS

- Questions are on both sides of the paper. This is an 5 question exam (One extra credit problem can be attempted for a total of 6 questions).
- Students have 50 minutes to complete the exam.
- **PLEASE SHOW ALL WORK**. Any unjustified claims will receive no credit. Clearly box your final answer.
- You **MUST** complete **5** problems for credit. In the above table in the row with the ✓, please mark with a ✓ which problems you want to be graded. If you wish to do a 6^{th} problem for extra credit, please write *EC* in the ✓ row for the problem you wish to be counted for extra credit.
- No notes, textbooks, phones, calculators, etc. are allowed for the exam.
- Each of the 5 questions you choose to do will be graded out of 4 points. The score will then be totaled and multiplied by 5 to get a raw score out of 100 points. If you choose to do a 6^{th} problem for extra credit, the most that will be awarded for that question will be 3 points. So, the highest possible score on this examination is 103 points out of 100.
- The back of the test can be used for scratch work.

GOOD LUCK!

1) Use graph transformations to sketch the graph of $f(x) = -|x-3|+1$. Label all x and y-intercepts.

2) Use polynomial or synthetic division to divide the polynomials: $(x^5 - 20x^3 + 30x^2 + 19x - 30) \div (x-1)$

3) Identify the asymptotes of the function: $f(x) = \frac{x^2+1}{x^2-x-2}$

4) Find the difference quotient $\frac{f(x+h)-f(x)}{h}$ for the function $f(x) = x^2 + 1$, and reduce completely.

5) Write the inverse function, $f^{-1}(x)$, for $f(x) = \sqrt{x-2}$, and check that your result is the inverse. (Hint: Remeber the domain and range when defining the inverse.)

6) Solve the following equation for x: $\ln(x-4) = \ln(x+6) - \ln(x)$

THIS PAGE IS LEFT BLANK FOR ANY SCRATCH WORK

END OF TEST