Math 103 – Polynomials and Polynomial Functions - NEATNESS IS REQUIRED!

All questions in problems 1-4 will deal with the same polynomial.

- SHOW ALL STEPS IN ALL PARTS OF THIS PROBLEM (even if they are exactly the same as the steps on another part of the problem)
- In each part: CIRCLE THE ANSWERS
- If you have been instructed to solve graphically:
  - INDICATE YOUR CHOICES OF Y1 and Y2; you MUST SHOW THE GRAPH ON THE PAPER
  - LABEL THE FUNCTIONS
  - LABELIMPORTANT FEATURES (NUMBERS) IN THE GRAPH
  - CIRCLE THE ANSWERS

1) Factor the polynomial $2x^2 + x - 15$

2) Solve the equation $2x^2 + x = 15$

3) Use algebra to find the x-intercepts of the polynomial function $f(x) = 2x^2 + x - 15$

4) Given the polynomial function $f(x) = 2x^2 + x - 15$

a) Give the domain of f(x)

b) Use a **graphical approach** to find the zeros. Show graph and labels.

c) Use the calculator to find $f(-5)$

d) Use a **graphical approach** to solve $f(x) = -10$

Round answers to 3 decimal places

e) What is the range of the function? What do you need to find out in order to answer this question? Write answer with inequality and interval notation. Label this important feature on the graph shown on part (b).

5) Use a **graphical approach** to solve $2x^2 + x - 15 = 2x + 5$
Write your choices of Y1 and Y2 using the equation as it is given. Do not manipulate the equation; that is, do not move terms around. Round answers to 3 decimal places

6) USE A GRAPH TO FACTOR the polynomial of problem number 68 on page 391.
Write the polynomial in factored form.