Math-19 Homework #9

Problems

1). Consider the quadratic function: $y = 2 - 5x - 3x^2$.

   a). By completing the square, convert the general form to standard form.

   b). What are the coordinates of the vertex?

   c). Is the parabola open up or open down? How do you know?

   d). What are the x-intercepts (if any)?

   e). What are the y-intercepts (if any)?

   f). What is the maximum value (if any)?

   g). What is the minimum value (if any)?

   h). Where is the axis of symmetry?

   i). Sketch the parabola. All key points must be labeled.

2). Consider the following polynomial function in factored form:

$$y = x^2(1-x)^2(2+x)(2-x)^3$$

   a). What is the degree?

   b). What is the leading term?

   c). What is the end behavior? How do you know?

   d). What are the x-intercepts (if any)?

   e). What are the y-intercepts (if any)?

   f). Sketch the polynomial.

   g). Attach a screenshot showing the determination of at least one relative minimum or maximum.