Math-08 Homework #12

Reading

- Text book section 3.1, 3.2

Problems

Note that all sketches of graphs must have all found intercepts and discontinuities labeled. All domains and ranges must be expressed in interval notation. Remember, sketches do not have to be to scale!

1). Some kids are playing with a toy that launches balls straight up into the air. The balls leaving the launcher with a velocity of 96 ft/s. How high do the balls go?

   a). Find the answer by completing the square.

   b). Find the answer using the $-\frac{b}{2a}$ shortcut.

2). Consider the polynomial:

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

   a). What is the end behavior?

   b). What are the x-intercept(s)?

   c). What are the y-intercept(s)?

   d). Sketch the graph. Be sure to mark all intercepts and show the proper shape at each zero. A sign table or multiplicity info must be included for credit.

   e). Use a calculator to determine any extrema on the graph using the minimum and maximum functions. Attach a screenshot showing the determination of each value.