7. [8 points] Consider the polynomials and \( a(x) = (x + 1)(x^2 - 6x + 3) \) and \( b(x) = x(3x^2 + 2) \).
   
   a. [3 points] Find all the zeros of \( a(x) \) and of \( b(x) \).
   
   (Show your work carefully, and give your answers in exact form.)

   zero(s) of \( a(x) \): ____________________    zero(s) of \( b(x) \): ____________________

   b. [5 points] Let \( r(x) = \frac{a(x)}{b(x)} \).

   Find all intercepts and all horizontal and vertical asymptotes of the graph of \( y = r(x) \).
   
   If appropriate, write “NONE” in the answer blank provided.

   \( x \)-intercept(s): ____________________

   \( y \)-intercept(s): ____________________

   horizontal asymptote(s): ____________________

   vertical asymptote(s): ____________________