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 $r(x) = \dfrac{a(x)}{b(x)}$.

        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): _____