1) **Demonstrate Horner's algorithm.** Horner's algorithm, also known as synthetic division, can be used to:
    a. evaluate a polynomial for $x = c$
    b. factor the polynomial into the form $f(x) = (x - c)q(x) + R$
    c. determine the value of $f'(c)$

    Demonstrate synthetic division on the following polynomial, giving the result at $x = 2$ and the value of $f'(2)$: $x^5 - 3x^3 + 2x^2 + x - 7$. Show how you get the value of the derivative $f'(2)$.

2) Demonstrate the bisection method.
    a. Compute the first four steps of the bisection method for the polynomial $x^3 - 3x^2 + 2$ on the interval $[-2, 0]$. Create a table with entries for a, b, $f(a)$, $f(b)$, c, and $f(c)$.
    b. Compute the actual root location $x = r$ (using Wolfram Alpha, a calculator, etc.).
    c. Calculate the absolute error for all four steps (add them to your table).

3) Demonstrate the method of false position.
    a. Clearly plot the function $x^3 - 3x^2 + 2$ on the interval $[-1, 0.7]$.
    b. Graphically demonstrate the first three steps of the method of false position to find the root in this interval. **You don't have to do the math.** Just draw clearly.

4) Demonstrate the modified false position method.
    a. $y = x^2 - 2$ where $0 \leq x \leq 2$ (Here's where you'll do the math)