Polynomial Review Stations – Answer Sheet

Station 1: Graphing Polynomials

Objective: Graph the given polynomial and analyze its end behavior and zeros.

1. **Polynomial**: _____
   - Degree of the polynomial: _____
   - Leading coefficient: _____
   - End Behavior: _____

     _____

   - Zeros of the polynomial (list any real roots):
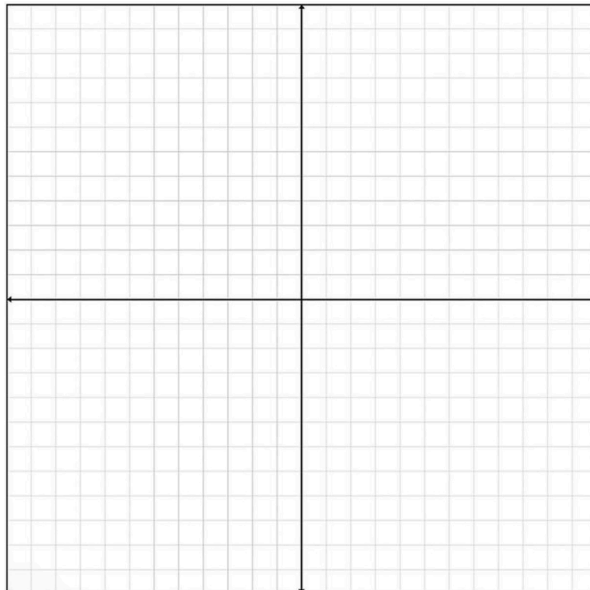
     x= _____   x= _____

     x= _____   x= _____

   - y-intercept:_____

   - Sketch the graph below. Indicate zeros and end behavior. (Draw your graph on the provided grid below.)

2. **Polynomial**: _____

   - Degree of the polynomial: _____
   - Leading coefficient: _____
   - End Behavior: _____

     _____

   - Zeros of the polynomial (list any real roots):

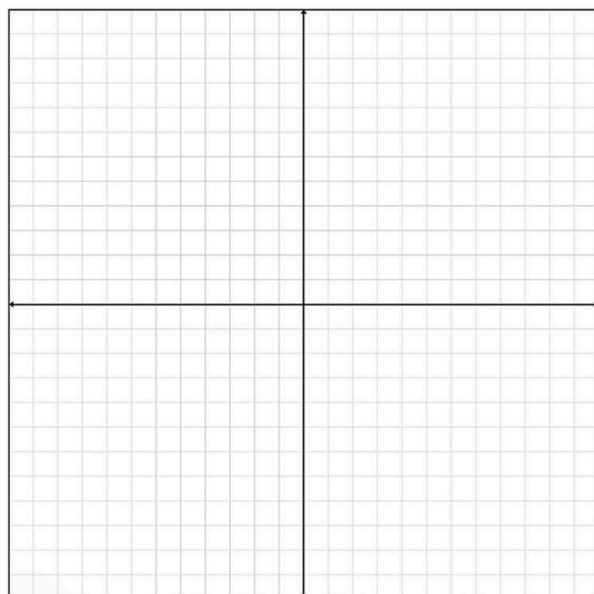   x= _____   x= _____

     x= _____   x= _____

   - y-intercept:_____

   - Sketch the graph below. Indicate zeros and end behavior. (Draw your graph on the provided grid below.)

3. **Polynomial**: _____

   - Degree of the polynomial: _____
   - Leading coefficient: _____
   - End Behavior: _____

     _____

   - Zeros of the polynomial (list any real roots):
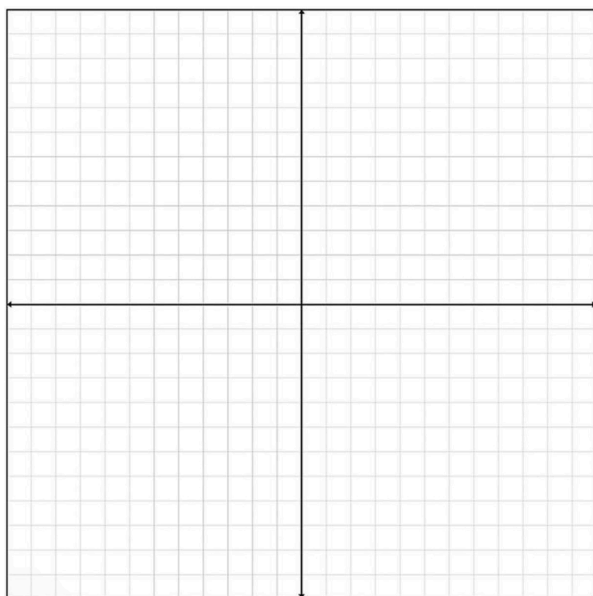
     x= _____   x= _____

     x= _____   x= _____

   - y-intercept:_____

   - Sketch the graph below. Indicate zeros and end behavior. (Draw your graph on the provided grid below.)

Station 2: Adding and Subtracting Polynomials

Objective: Combine like terms and simplify the given polynomials.

Multiply the polynomials and simplify the result.

Step-by-step Work:

1. Problem 1:_____

    _____

    Simplified expression:_____

2. Problem 2:_____

    _____

    Simplified expression:_____

3. Problem 3:_____

    _____

    _____

    Simplified expression:_____

4. Problem 4:_____

_____

_____

Simplified expression:_____

5. Problem 5:_____

_____

_____

Simplified expression:_____

Station 3: Polynomial Identities

Objective: Apply polynomial identities to simplify or factor the expressions.

Step-by-step Work:

1. Problem 1:_____

   _____

   Factored expression:_____

2. Problem 2:_____

   _____

   Simplified expression:_____

3. Problem 3:_____

   _____

   Factored expression:_____

4. Problem 4:_____

   _____

   _____

   Simplified expression:_____

Station 4: Dividing Polynomials

Objective: Use synthetic or long division to divide the polynomials.

Use synthetic or long division to evaluate the polynomial at the given x value.

Step-by-step Work:

1. Problem 1:_____

   Quotient: _____   Remainder:_____

2. Problem 2:_____

   Quotient: _____   Remainder:_____

3. Problem 3: _____

   Answer:_____

4. Problem 4: _____

   Answer:_____

Station 5: Zeroes and Roots of Polynomials

Objective: Use synthetic division or the Rational Root Theorem to find the zeros of the polynomial.

Step-by-step Work:

1. List all possible rational roots.

   _____

   _____

   List all roots (if applicable):

   _____

   _____

2. List all possible rational roots.

   _____

   _____

   List all roots (if applicable):

   _____

   _____

3. List all possible rational roots.

   _____

   _____

   List all roots (if applicable):

   _____

   _____

Station 6: Root Theorems of Polynomials

Objective: Write a polynomial function of least degree with rational coefficients that has the given zeros.

1. Write the polynomial with the given roots.

2. Write the polynomial with the given roots.

3. Write the polynomial with the given roots.