MA 109: October 5

Quadratic Functions, and Polynomials: Roots, Multiplicity, and Equations

# Start of Class

## Instructor Information

Name:

Email:

Office Hours:

## Warm-up Questions

# Notes

**Quadratic Functions**

**Example:** Suppose 𝑓(𝑥)=5(𝑥−2)(𝑥+7). What are the roots of 𝑓(𝑥)?

**Example:** Write the equation of the quadratic function with roots at 𝑥=3,−2 and 𝑦-intercept at 𝑦=18.

**Example:** Write the equation of the quadratic function with a root at 𝑥=7 and goes through the point (3,−2).

**Polynomials**

**Example:** Complete the following table to determine all of the roots and their multiplicities for the function

|  |  |
| --- | --- |
| Root | Multiplicity |
|  |  |

Chart, line chart

Description automatically generated**Example:** Complete the following table to determine all of the roots and their multiplicities for the polynomial function in the graph below.

|  |  |
| --- | --- |
| Root | Multiplicity |
|  |  |

**Summary: Roots and Multiplicity**

|  |  |
| --- | --- |
| From the Equation | From the Graph |
|  |  |

**Example:** Write the equation of the degree 6 polynomial with roots of multiplicity 2 at −2 and 5, and a root of multiplicity 1 at 0, and goes through the point (3,−150).

# End of Class

Write a summary of what you learned today:

What questions do you have about the material from today?

What do you need to do between now and the next class meeting?