ALGEBRA II | Homework 1103 | Name:
DR. PAUL L. BAILEY | Wednesday, November 3, 2021

Due Thursday, November 4, 2021. Write all complex number and polynomials in standard form.

Problem 1. Let $f(x) = x^2 - 8x + 15$. Draw a sign chart for f.

Problem 2. Let $f(x) = (x + 2)(x - 4)(x - 7)$.

(a) What is the y-intercept of f?

(b) What are the x-intercepts of f?

(c) Draw a sign chart for f.

(d) Use parts **(a)** through **(c)** to make a rough sketch of the graph of f.

Problem 3. Let $f(x) = x^2 - 3$ and $g(x) = x^4 - 2x^3 + 3x^2 - 4x + 5$. // Find the quotient and remainder when $g(x)$ is divided by $f(x)$.

Problem 4. Let $z = 5 + 2i$ and $w = 3 - 7i$.

(a) Compute $z + w$

(b) Compute zw

(c) Compute z/w

Problem 5. Let $f(x) = x^3 - 4x^2 - 11x + 30$.

(a) Show that $f(2) = 0$. Why does this show that $(x - 2)$ is a factor of f?

(b) Divide $f(x)$ by $(x - 2)$. Let $q(x)$ be the quotient, so $f(x) = (x - 2)q(x)$.

(c) Factor $q(x)$.

(d) Write the solution set to the equation $f(x) = 0$.