Take-Home Test 3, Fall, 2021NameCovers Chapter 3 Graphing

Use unlined, 8 ½ x 11 inch paper. You may slide your completed Take-Home Test under my door on Greeley Campus at EDBH 134 K, or mail it to:

Harry Mills EDBH 134K Aims Community College 5401 West 20th Street Greeley, CO 80634

You may also submit a clean, high-contrast PDF scan in an e-mail attachment to <u>hmills1@online.aims.edu</u>. I reserve the right to refuse faint, hard-to-read scans.

Use A4 letter paper or printer paper, without lines and without graph paper. You may use a straight-edge, but if you're a slave to scale, your graphs will not exchibit key features, especially concavity.

SHOW ALL WORK. USE A LEGEND AND LETTER LABELS TO LABEL KEY POINTS, AS DEMONSTRATED IN CLASS.

- 1. (15 pts) Sketch the graph of the trigonometric polynomial $g(x) = 2\sin(x) + \cos(2x)$ on the interval $[0, 2\pi]$, showing all intercepts, extremes and inflection points. Your graphs must capture the essence of the shape, especially the concavity features. I want to see your work, with *exact* values and 4-decimal-place approximations for all *x* and *y*-values in your legend.
- 2. (15 pts) Sketch the graph of $R(x) = \frac{x^2 3x 28}{x 1}$ over the entire real line. Show all intercepts, extremes,

asymptotes (vertical and oblique) and inflection points. If you're a slave to scale, you can lose the essence with graphs that are too vertical for you to handle with a hand sketch.

Organizing your presentation:

I want to see a very clear graph, and a list of the key points. I will demonstrate $g(x) = \sin(x) + \cos(x)$ in class, and present a rational function example, also.

For the trigonometric polynomial, I will want to see EXACT solutions as well as 4-digit decimal approximations for the coordinate of the key points. I'll show you what I mean...