Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Band:\_\_\_\_\_

Algebra 2

**Sketching Polynomial Functions Homework**

***READ ME:*** Use your knowledge about end behavior, $x$-intercepts/roots/solutions, repeated solutions, imaginary solutions, and turning points to help you sketch each polynomial function. Write out the cool observations you make to show your work. Do NOT use a graphing calculator to “cheat” your way to a sketch.

**Sketch a graph of each polynomial function. Write out the cool observations you make to show your work.**

**1.** $f\left(x\right)=(x-1)(x-2)(x+2)$ **2.** $h\left(x\right)=\left(x+2\right)^{2}(x+1)$

**3.** $g\left(x\right)=(x+1)(x-1)(x+2)$ **4.** $f\left(x\right)=\left(x-1\right)^{2}(x+2)$

**5.** $f\left(x\right)=\left(x-2\right)^{2}(x+1)$ **6.** $f\left(x\right)=\left(x+2\right)^{2}\left(x+4\right)^{2}$

**7.** $h\left(x\right)=\left(x+1\right)^{2}(x-1)(x-3)$ **8.** $f\left(x\right)=x^{2}\left(x-3\right)^{3}$