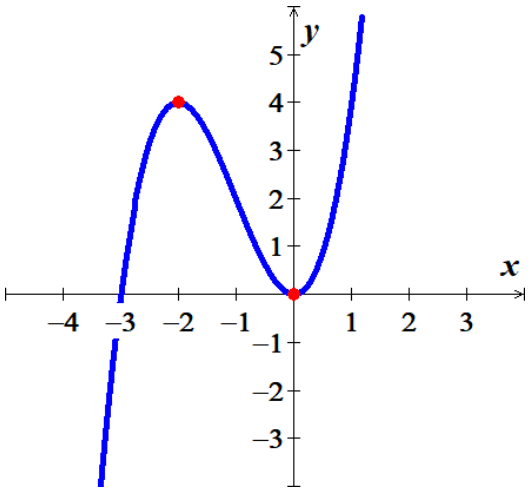
Math 1314 **Homework** *Sec*–2.1 ***Name***:

1. $f(x)=\begin{cases} 3-x+x^2 & \text{if } -2\le x\le 0 \\ \dfrac{1}{x} & \text{if } 0<x<2 \\ \sqrt{4+x^2} & \text{if } 3\le x\le 5 \end{cases}$ **Find**: $f(-5),\ f(-1),\ f(0),\ f\left(\frac{1}{2}\right),\ f(3),$ *and* $f(4)$

2. Determine any ***relative maximum*** or ***minimum*** of the function, determine the intervals on which the function ***increasing*** or ***decreasing***, and then find the ***domain*** and the ***range***.

$f(x)=x^3+3x^2$



3. An airplane is flying at an altitude of 3800 *feet*. The slanted distance directly to the airport is d *feet*. Express the horizontal distance x as a function of d.