251 - Worksheet 1

Name:

Sketch a reasonable graph of $f(x) = \dfrac{x^2}{x-1}$ and label the asymptotes. Determine the slope of the secant line between the points $(2, f(2))$ and $(3, f(3))$ and plot this line on your graph.

Sketch a graph of $f(x) = \sin(x)$ on the interval $[0, \frac{5\pi}{2}]$, then sketch a graph of $f(x + \pi/2)$ on the interval $[0, \frac{5\pi}{2}]$ (does this graph look familiar?!)

Let $f(x) = \frac{1}{x+1}$. Simplify $\dfrac{f(x+h) - f(x)}{h}$ to an expression that does not have a problem with $h = 0$.

Let $f(x) = ax^2 + bx + c$. Determine a condition on a, b and c that guarantees real roots of $f(x)$, then give a magic formula for the roots. (show all your work)