Math 126, in-class exercise 1 on algebra: Name: .

Typically, I'll work a similar example, then I'll pause to let you work out one of these. At the end of class these will be collected and you will earn a grade on the basis of your participation. Solutions will be posted in BB.

1.) Let $f(x) = x^2 - 6x + 1$. Solve $f(x) = 0$ by the quadratic formula. Also, use these solutions to factor $f(x)$.

2.) Rationalize the denominator of $\frac{x+2}{3+\sqrt{x-2}}$.

3.) Find the equation of a line (name it Sammy) through (1,2) and (-3,7). Then find the equation of a second line which is perpendicular to Sammy and has a y-intercept of 2.

4.) Suppose $F(x) = \frac{1}{\sqrt{9-x}}$. Find the domain of F

5.) Let $f(x) = x^2 = 3$ and let $g(x) = \frac{1}{x^2} - 7$. Find the formulas for $(f\ o\ g)(x)$ and $(g\ o\ f)(x)$

6.) Suppose $h(x) = \sqrt[4]{x^2 + \frac{3}{x}}$ identify how h is formed as the composite of functions g and f. In particular, find formulas for $f(x)$ and $g(x)$ such that $h = g\ o\ f$.

7.) Graph $y = f(x)$ where $f(x) = p(x)/q(x)$ and $p(x) = (x-2)^2(x^2-1)$ and $q(x) = (x^2+4x+5)(x^3-9x^2)$. Your graph should include labels for Vertical Asymptotes (VA) and x-intercepts. Please make a sign-chart to help guide your work.