Wilf Csaplar Jr. ECON/BUSI 205 Homework #2 **Due Friday 2/9**

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. If you use double-sided printing or write on the back of scrap paper, I will give you one additional point.

Show all work for all questions which have work.

1) (5 points each) Plot the following and state how you found them.
A) $(0,10]$
B) $[11, \infty)$
C) $-2 < X \leq 7$

2) (20 points) Find the Euclidean distance between $(4, 6, -2)$ and $(-1, 6, 10)$. Plot the two points, briefly stating how you found each.

3) (20 points each) Plot each of these lines by finding key points. State how you found them. Is the function invertable? I.e., does F^{-1} exist? If no, prove it. If yes, then find it showing all work. Determine if it is a strictly convex function, convex function, concave function, strictly concave function, or none of the above. Explain your logic.
A) $Y = F(X) = -2X^2 + 4X + 3$
B) $Y = F(X) = 2X^{1/2}$

4) (25 points) Suppose your utility function for hats (H) and jackets (J) was given by $U(H,J) = HJ$. (You will find out later that this is not a legitimate utility function, but it takes the normal shape.) Plot at least 6 points on an indifference curve, i.e. an isobar or level curve. State how you found the points. Is the function quasi-concave, quasi-convex, or neither? Explain your logic.