

Do not put your name anywhere on the assignment, other than on the back of this sheet of paper. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points.

1) (5 points) Which part of my web page, <http://mysite.bethanywv.edu/wcsaplar/> do you think will be most helpful? Why? Is anything missing that you would like to see?

2) (5 points) Which part of the Department of Economics and Business's web page, <http://www.bethanywv.edu/economics/> do you think will be most helpful? Why? Is anything missing that you would like to see?

3) (10 points each) For each of the following, find F_X , F_Y , F_{XX} , F_{XY} , and F_{YY} .

A) $F(X,Y) = X^3Y^2 + 3X^{-1/2} + \ln(X^2) + 4$

B) $F(X,Y) = X^2Y - X/Y + 3XY$

C) $F(X,Y) = X^{1/2}Y^{1/3} + 4X^{1/4}Y^{1/2} + 113$

4) (15 points) Find the maximum value for $F(X,Y) = X^{1/2}Y^{1/4}$ subject to $X + Y = 6$. If the 6 in the constraint was relaxed to 7, then approximately, how much would the value of F increase? Show all work.

5) (20 points) Maximize $X^{1/4}Y^{1/2}Z^{1/4}$ subject to $3X + 6Y + 3Z = 180$. Show all work. How much is λ ?

6) (25 points) Maximize $X^{1/3}Y^{1/3}Z^{1/3}$ subject to $4X + 3Y + Z = 288$. Show all work. How much is λ ?