

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 1 point. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

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? What is the URL for the first exam from this class during the last semester it was taught?

2) (5 points) Which part of the Department of Economics and Business's web page, <http://www2.bethanywv.edu/econ/> 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) $F(X,Y) = 5X^3Y^2 + 2X^{-1/2} + \ln(X^2) + 4$

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

C) $F(X,Y) = 6X^{1/2}Y^{1/3} + 4X^{1/4}Y^{1/2} + 113$

4) (15 points) Find the maximum value for $F(X,Y) = 4X^{3/4}Y^{1/4}$ subject to $X + Y = 80$. If the 80 in the constraint was relaxed to 81, then approximately, how much would the value of F increase? Show all work. Do not rework the problem with the new value for the constraint – just estimate the new value of F.

5) (20 points) Maximize $4X^{1/4}Y^{1/2}Z^{1/4}$ subject to $X + Y + Z = 324$. Show all work. How much is λ ?

6) (25 points) Maximize $3X^{1/3}Y^{1/3}Z^{1/3}$ subject to $4X + Y + 2Z = 900$. Show all work. How much is λ ?