Quiz Questions 6 for Mathematics 224
Introductory Analysis II - Spring 2001
Material Covered: Sections 7.4, 7.5 of workbook and text
For: Friday, 13th April

This is a 15 minute quiz, worth 5% and marked out of 5 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator may also be used. No other aids are permitted.

Name (please print): _____ . **ID Number:** _____.
last first

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1. Let $z = x^2 + 3y^2 - 5$.

(a) [1 point] $f_x = 0$ and $f_y = 0$ when $(x, y) =$ (circle one)
$(-2, -6)$ / **$(-2, 0)$** / **$(0, 0)$** / **$(0, 2)$** / **$(2, 6)$**

(b) [1 point] $D =$ (circle closest one)
10 / **11** / **12** / **13** / **14**

(c) [1 point] Point (x, y) from part (a) above is a (circle one)
minimum / **maximum** / **saddlepoint**

2. Consider the following data on the circumference and height of trees.

circumference, x	21	17	11	15	27
height, y	34	22	25	32	44

(a) [1 point] The least–squares line

is _____

(b) [1 point] This least–squares line predicts, for a tree with circumference of 21 inches,

the height is _____

1. Let $z = x^2 + 3y^2 - 5$.

(a) **(0, 0)**
$f_x = 2x = 0,\ f_y = 6y = 0$

(b) **12**
$f_{xx} = 2,\ f_{xy} = 0,\ f_{yx} = 0,\ f_{yy} = 0$
$D = f_{xx}(0,0) \cdot f_{yy}(0,0) - [f_{xy}(0,0)]^2 = 2(6) - 0^2 = 12$

(c) **minimum**
since $D = 12 > 0$ and $f_{xx} = 2 > 0$

2.

(a) $\boldsymbol{y = 1.17x + 10.17}$
STAT CALC 4:LinReg

(b) **34.7**
$y = 1.17(21) + 10.17 = 34.7$