

Please show **all** your work! Answers without supporting work will not be given credit.  
Write answers in spaces provided.

Name: \_\_\_\_\_

1. [4 pts] Find the domain of

$$f(x, y) = \frac{\sqrt{x + y - 1}}{\ln(y - 11) - 9}$$

Answer: \_\_\_\_\_

2. [2 pts] Describe the indicated level curves  $f(x, y) = C$

$$f(x, y) = \ln(x^2 + y^2); \quad C = \ln(36)$$

- (a) Parabola with vertices at  $(0, 0)$
- (b) Circle with center at  $(0, \ln 36)$  and radius 6
- (c) Parabola with vertices at  $(0, \ln 36)$
- (d) Circle with center at  $(0, 0)$  and radius 6
- (e) Circle with center at  $(0, 0)$  and radius  $\ln(36)$
- (f) Increasing Logarithm Function

3. [4 pts] Compute  $f_x(6, 5)$  when

$$f(x, y) = \frac{(6x - 6y)^2}{\sqrt{y - 1}}$$

$f_x(6, 5) =$  \_\_\_\_\_