

Name:

1. Find the domain of f , and find the indicated function values:

$$f(u,v) = \frac{uv}{u-2v}; f(2,3), f(-1,4), f(0,1)$$

the domain of $f(u,v) = R^2 - \{u = 2v\}$.

$$f(2,3) = \frac{3}{-2}$$

$$f(-1,4) = \frac{4}{9}$$

$$f(0,1) = 0$$

2. Find the limit:

$$\lim_{(x,y) \rightarrow (0,0)} \frac{x^2-2}{3+xy} = \frac{-2}{3}$$

$$\lim_{(x,y,z) \rightarrow (0,0,0)} \frac{y^3 \sin x}{x^2+y^2+z^2} = 0$$

3. Find the domain of continuity of f :

$$f(x,y,z) = \sqrt{4 - x^2 - y^2 - z^2}$$

the domain of continuity of $f = R^3$ such that $x^2 + y^2 + z^2 \leq 4$

$$f(x,y) = \frac{y}{x-y}$$

the domain of continuity of $f(x,y) = R^2 - \{x = y\}$

4. Find the first partial derivatives of f :

$$f(r,s,t,z) = r^2 e^{2s} z \cos t$$

$$f_r = 2r e^{2s} z \cos t$$

$$f_s = 2r^2 e^{2s} z \cos t$$

$$f_t = -r^2 e^{2s} z \sin t$$

$$f_z = r^2 e^{2s} \cos t$$