Limit & Domain & Range Practice

Domain & Range:

X10 #1-3   Find Domain & Range of following:

1. $f(x,y) = 4\cos(x-y)$

Domain: Can anything <u>not</u> be inputted?

Range: Find max & min

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

Domain : Can anything <u>not</u> be inputted?

Range : Find max & min

3. $f(x, y) = \ln(5 - x^2 - 5y^2)$

Domain : Can anything <u>not</u> be inputted?

Range : Find max & min

Limit Practice:

If you show 2 paths yield different answers, the limit DNE.

XII

#1. $\lim\limits_{(x,y) \to (0,0)} \dfrac{x^4 + 14y^2}{x^2 - 7y^2}$

#2 $\lim\limits_{(x,y) \to (0,0)} \dfrac{x^2 + y^2}{\sqrt{x^2 + y^2 + 49} - 7}$

#3 $\displaystyle \lim_{(x,y)\to(0,0)} \frac{x^4 y}{x^8 + y^2}$

Along x-axis, $\dfrac{x^4 y}{x^8 + y^2} \longrightarrow$

Along y-axis, $\dfrac{x^4 y}{x^8 + y^2} \longrightarrow$

Along the path $y = \underline{}$ $\dfrac{x^4 y}{x^8 + y^2} \longrightarrow$

Therefore: