Problem 1

Find $\lim\limits_{(x,y)\to(2,3)} \dfrac{x^2 - y + xy + 1}{x^2 + y^2 - 5}$ if it exists.

Problem 2

Find $\lim\limits_{(x,y)\to(1,1)} \dfrac{xy - y - 2x + 2}{x - 1}$ if it exists.

Problem 3

Find $\lim\limits_{(x,y)\to(0,0)} \dfrac{x - y + 2\sqrt{x} - 2\sqrt{y}}{\sqrt{x} - \sqrt{y}}$ if it exists.

Problem 4

Find $\lim\limits_{(x,y)\to(0,0)} \dfrac{x^4}{x^4 + y^4}$ if it exists.