Tutor-USA.com Worksheet **Name:** _____

Multivariable Limits 1 **Date:** _____ **Period:** _____ **Score:** _____

Find the Limit.

(1) $\lim_{(x,y)\to(2,1)} (x + 3y^2)$

(2) $\lim_{(x,y)\to(2,4)} \frac{x+y}{x-y}$

(3) $\lim_{(x,y)\to(0,1)} \frac{arc\sin(x/y)}{1+xy}$

(4) $\lim_{(x,y)\to(0,0)} (5x + 3xy + y + 1)$

(5) $\lim_{(x,y)\to(0,0)} \ln(x^2 + y^2)$

(6) $\lim_{(x,y)\to(0,0)} \dfrac{\sin(x^2+y^2)}{x^2+y^2}$

(7) $\lim_{(x,y)\to(1,1)} \dfrac{x}{\sqrt{x+y}}$

(8) $\lim_{(x,y)\to(0,0)} e^{xy}$

(9) $\lim_{(x,y)\to(0,0)} \left(\dfrac{x^2}{(x^2+1)(y^2+1)}\right)$

(10) $\lim_{(x,y)\to(0,0)} \left[1-\dfrac{\cos(x^2+y^2)}{x^2+y^2}\right]$

Answer Key

(1) 5

(2) -3

(3) 0

(4) 1

(5) $-\infty$

(6) 1

(7) $\frac{\sqrt{2}}{2}$

(8) 1

(9) 0

(10) $-\infty$

