MATH 232 NAME:
14.2

Partial solutions for 5 6 8 11 13 14 39-41

5. $\lim_{(x,y)\to(3,2)} f(x,y) = 56$

6. $\lim_{(x,y)\to(2,-1)} f(x,y) = -2/3$

8. $\lim_{(x,y)\to(3,2)} f(x,y) = e^2$

11. Along $y = 0$, $\lim_{x\to 0} f(x,0) = 0$. Along $x = 0$, $\lim_{y\to 0} f(0,y) = 0$. Along $y = x$, $\lim_{x\to 0} f(x,x) = 1/2$. Limit does not exist.

13. Hint: $0 \le \left|\dfrac{xy}{\sqrt{x^2+y^2}}\right| \le |x|$. Final: $\lim_{(x,y)\to(0,0)} f(x,y) = 0$

14. Factor to get $f(x,y) = x - y$. Final: 0

39. Convert to polar. $\lim_{r\to 0} r\cos^3\theta + r\sin^3\theta = 0$

40. Cover to polar. Need L'Hospital. Final: 0

41. Convert to polar. Need L'Hospital. Final: -1