Answers to Test 2, Fall 2001

1. No, $f(x, y)$ approaches -3 along the line $x = 0$ and $f(x, y)$ approaches 0 along the line $y = 0$.

2. $12x - 12y$

3. 5

4. 6

5. $-x + 6y - 9z = 18$

6. $\langle 4/5, -3/5 \rangle$

7. $y \sin(xy) + z^2 - x \sin(xy)$

8. The Global Maximum is 18 and it occurs at the points $(-1, \pm\sqrt{3})$ and $(2, 0)$.
   The Global Minimum is $-14/27$ and it occurs at the point $(1/3, 0)$.

9. The critical point $(1, 0)$ determines a saddle point.
   The critical point $(-1, 0)$ determines a saddle point.
   The critical point $(-1, -1)$ determines a saddle point.
   The critical point $(-1/3, -1/3)$ determines a local maxiumum.