Answers to Test 2, Spring 2001

1. (a) $-56/5$

   (b) -13

2. $36x$

3. $(3x^2y)(4u^3) + (x^3 - 2y)(-v\sin(uv))$

4. $5x - 2y - 2z = 5$

5. 12

6. The critical points are $(0,0)$ and all (x,y) satisfying $x^2 + y^2 = 9$.

   The maximum value is 48 and it occurs at the points $(2, \pm\sqrt{5})$.

   The minimum value is -48 and it occurs at the points $(-2, \pm\sqrt{5})$.

7. The critical points are $P = (1,-1)$ and $R = (0,0)$.

   The point P determines a local maximum.

   The point R determines a saddle point.