

**Quiz 5**  
**MATH 241**  
**Spring 2023**

**Name:** \_\_\_\_\_  
**Section:** \_\_\_\_\_

1. Let  $f = x^2y + x$

(a) (3 pts) Compute  $\nabla f(1, 3)$

(b) (3 pts) Compute the directional derivative of  $f$  at  $(1, 3)$  in the direction of  $\mathbf{v} = \mathbf{i} + 2\mathbf{j}$

2. (4 pts) Compute the tangent plane to  $g(x, y) = x^2 + 4y^2 - y$  at  $(2, 2)$ .