MAT 150, Introduction to Advanced Mathematics Name \_\_\_\_\_\_ Homework 9, due by 11/10

Score\_\_\_\_\_

1. Find all rational solutions of the following equations:

$$x^{2} + y^{2} + 3 = 0,$$
  

$$x^{2} + y^{2} - 3 = 0,$$
  

$$x^{2} - xy + y^{2} - 4x + 2y + 4 = 0,$$
  

$$x^{2} + y^{2} + z^{2} = 1.$$

2. Find all integer solutions of the following equations:

$$x^{2} + y^{2} - 5z^{2} = 0,$$
  
$$x^{2} - 3y^{2} + z^{2} = 0.$$