MAT 150, Introduction to Advanced Mathematics
Homework 9, due by $11 / 10$

Name $\qquad$
Score $\qquad$

1. Find all rational solutions of the following equations:

$$
\begin{aligned}
x^{2}+y^{2}+3 & =0 \\
x^{2}+y^{2}-3 & =0 \\
x^{2}-x y+y^{2}-4 x+2 y+4 & =0 \\
x^{2}+y^{2}+z^{2} & =1
\end{aligned}
$$

2. Find all integer solutions of the following equations:

$$
\begin{aligned}
& x^{2}+y^{2}-5 z^{2}=0, \\
& x^{2}-3 y^{2}+z^{2}=0 .
\end{aligned}
$$

