## Precalc BC

2D Squares and Roots
Name:

1. Given $v=(-1,1)$, find $\frac{1}{v}$ in two ways:
a. Geometrically on the grid.
b. Convert to polar form, manipulate, and convert back to rectangular form. Compare, the answer should have rational coordinates.

2. Perform the following operations geometrically.
a) Find and label $a^{2}, b^{2}$ and $c^{2}$

b) Find and label $\sqrt{a}, \sqrt{b}$ and $\sqrt{c}$

Remember, there are two roots for each!

3. Given $a=(-5,-12)$, calculate $a^{2}$ two different ways:
a. Convert to polar, square, convert back to rectangular.
b. Calculate directly in rectangular form.
4. Given $a=(-3,4)$, find $\sqrt{a}$ in two ways:
a. Geometrically on the grid (the answer should have integral coordinates).
b. Convert to polar form, manipulate, and convert back to rectangular form. Compare.

c. Are there two roots? How are they related?
d. Confirm, by multiplying in rectangular form, that both your answers, squared, yield $a$.

