## MAT 342, Quiz 1, 09/09

## please label all data in your figures

1. Let z = -4 + 3i.

Find |z|.

Find  $\bar{z}$ .

Plot both z and  $\bar{z}$  on the complex plane (use the axes on the right).

**2.** For z = -4 + 3i as above, find  $z\bar{z}$  and  $\left|\frac{z}{\bar{z}}\right|$ .

It is best and quickest to use properties of complex numbers here, but direct calculation is also accepted.



**3.** Plot the curve |z - 1 - 2i| = 2. Explain briefly why it has the shape you've drawn.

**4.** Let u = 1 - i.

Find  $\arg u$ . Illustrate on the complex plane.

Find  $u^4$ .

