

## Problems on Complex Notation

Here are a few practice problems to refresh your memory on complex notation. Please do these in your lab notebook before Lab 6.

1. Find the magnitude of  $z = 5 + 2i$
2. Write  $z = 3 + 4i$  in the form  $z = re^{i\theta}$
3. Write  $z = 13e^{i\frac{2\pi}{3}}$  in the form  $z = x + iy$
4. What is  $e^{i\pi}$ ? (Your answer should be a number)
5. What is  $e^{i\frac{\pi}{2}}$ ? (Your answer should be a number)
6. Add  $z = 5 + 2i$  to  $w = 3 + 4i$ . Give your answer both ways,  $x + iy$  and  $re^{i\theta}$ .
7. Multiply  $z = 5 + 2i$  to  $w = 3 + 4i$ . Give your answer both ways,  $x + iy$  and  $re^{i\theta}$ .
8. Solve this:  $3x^2 + 9x + 7$  using the quadratic equation.
9. Given any complex number  $z = x + iy$ , show that  $|z|$  must be real.