

NAME:

## Worksheet Week III

- (a) Sketch the families of level curves of the component functions  $u$  and  $v$  when  $f(z) = \text{Log}(z)$ .

- (b) Note that they are orthogonal. Is this a coincidence?

(c) Show that  $\operatorname{Log}(i^3) \neq 3 \operatorname{Log}(i)$ .

(d) Solve for  $z$ :

$$\log(z) = i\pi/2.$$

(e) Do the same as in (a) for the function  $f(z) = \sqrt{z}$  (where  $\sqrt{\phantom{x}}$  denotes the principal square root).