

1) Please write down the **location, date** and **time** of our final exam? [30 pts]

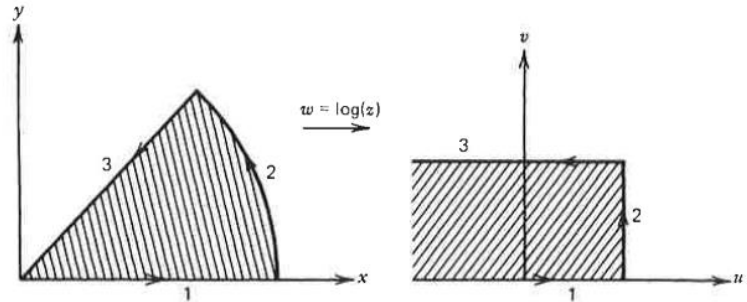
2) Use conformal mapping with  $w = \log(z) = \log|z| + i \arg(z)$  to solve the following PDE [70 pts]

$$\nabla^2 \phi = 0 \quad 0 < r \leq 1 \quad 0 < \theta < \frac{\pi}{2}$$

$$\phi(r, 0) = 1$$

$$\phi(r, \pi/2) = 0$$

$$\frac{d\phi}{dr}(1, \theta) = 0$$



Hint: The reverse transform is:  $z = e^w$