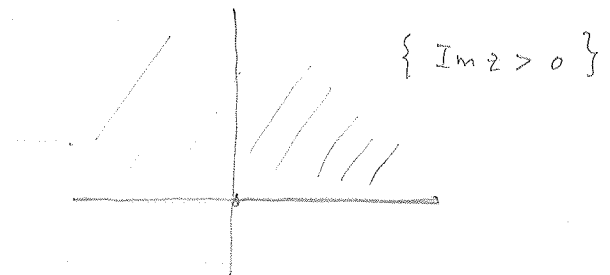
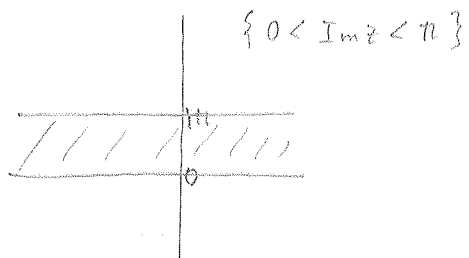


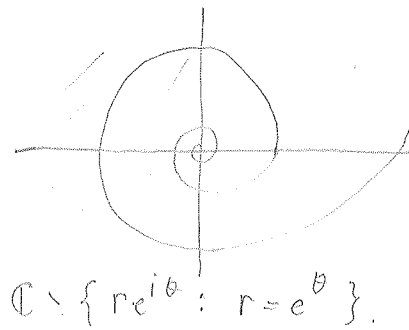
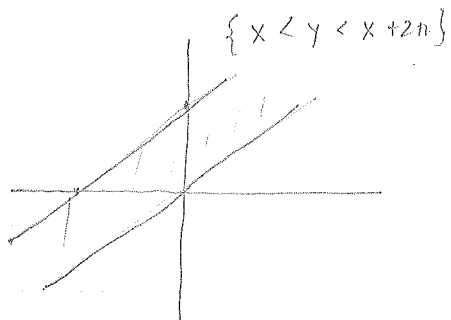
7.2.11

In each case, first map the boundary:

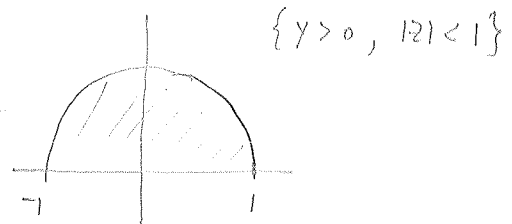
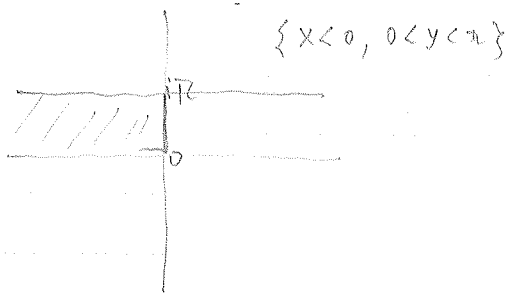
(a)



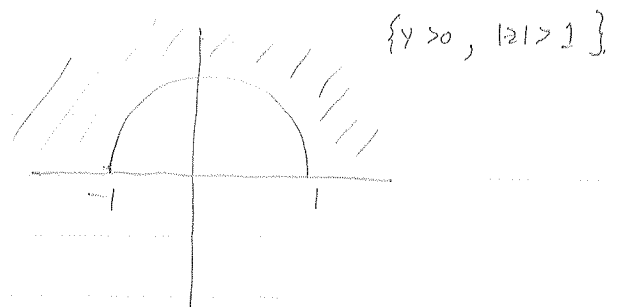
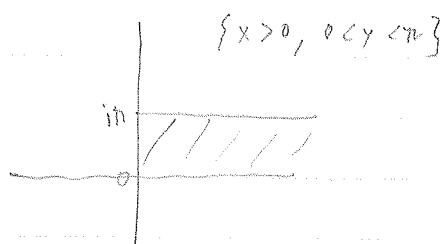
(b)



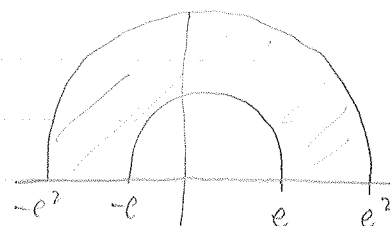
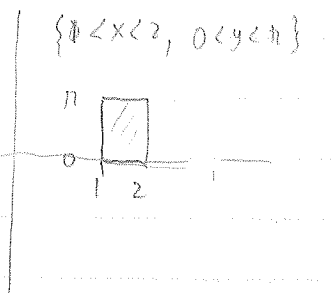
(c)



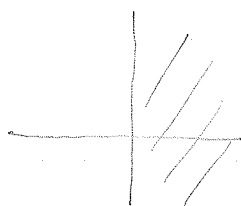
(d)



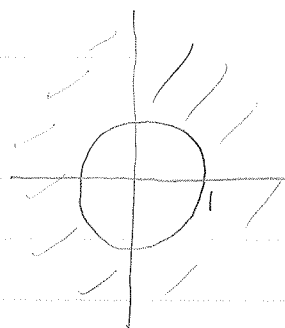
(e)



(f)

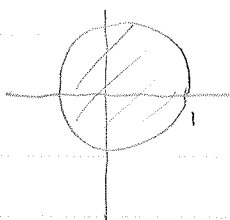


$x > 0$



$\{|z| > 1\}$

$x < 0$

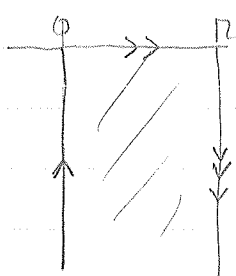


$\{|z| < 1\}$

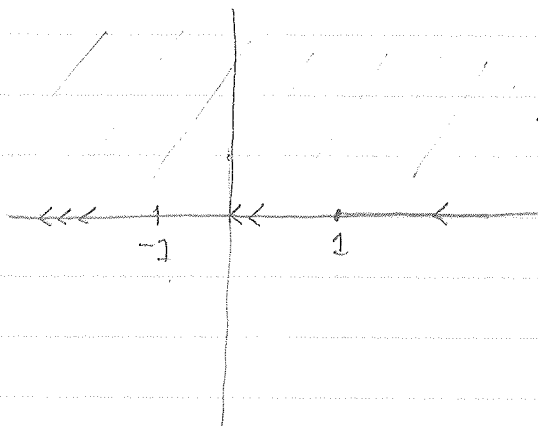
7.2.13

$$w = \cos z = \cos x \cosh y - i \sin x \sinh y$$

(a)

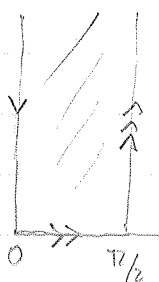


$\{0 < x < \pi, y < 0\}$

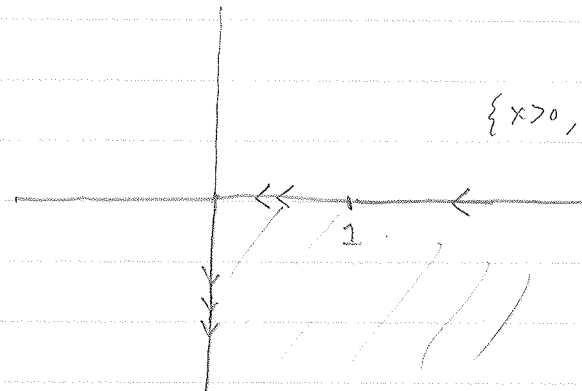


$\{y > 0\}$

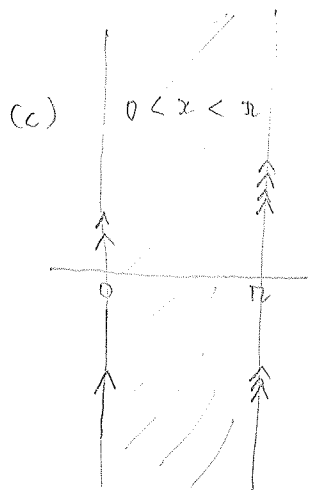
(b)



$\{0 < x < \frac{\pi}{2}, y > 0\}$



$\{x > 0, y < 0\}$



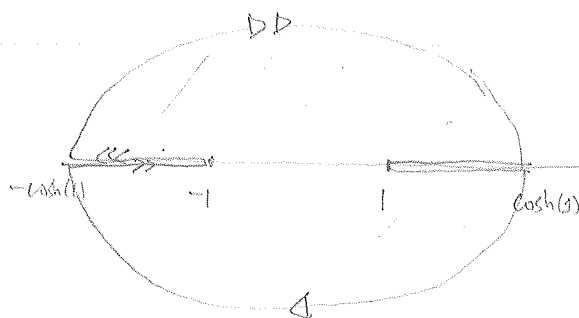
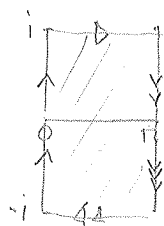
$$\mathbb{C} \setminus (\{[-\infty, 0] \cup [0, \infty]\})$$



$$0 < x < \pi$$

$$-1 < y < 1$$

(d)



Note: $y=1, 0 < x < \pi \Rightarrow \cosh z = \cosh(x) \cosh(1) - i \sinh(x) \sinh(1) = a + ib$

lies on the ellipse $\left(\frac{a}{\cosh(1)}\right)^2 + \left(\frac{b}{\sinh(1)}\right)^2 = 1$