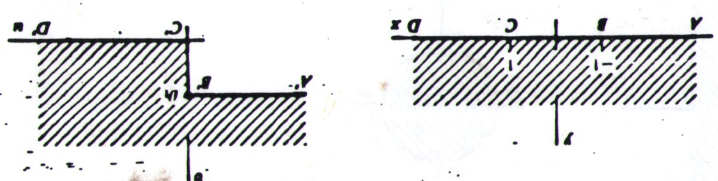


Figure 29. $w = \frac{h}{\pi}[(z^2 - 1)^{1/2} + \cosh^{-1} z]$.*

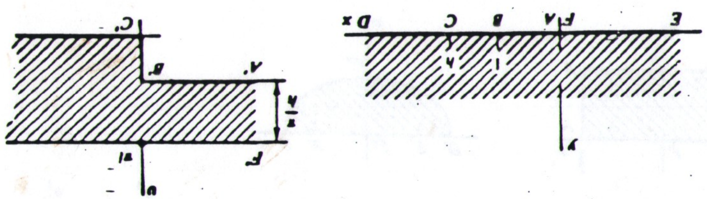


Figure 30. $w = \cosh^{-1}\left(\frac{2z - h - 1}{h - 1}\right) - \frac{1}{h}\cosh^{-1}\left[\frac{(h + 1)z - 2h}{(h - 1)z}\right]$.

*See Exercise 3, Sec. 93.

APPENDIX

2

TABLE OF TRANSFORMATIONS OF REGIONS (See Chap. 7)

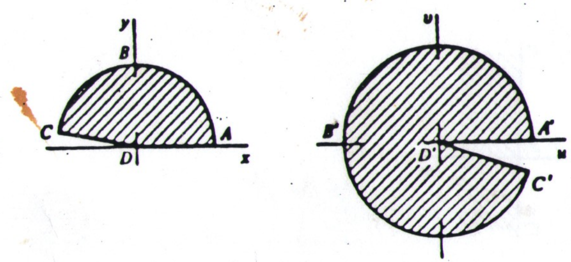


Figure 1. $w = z^2$.

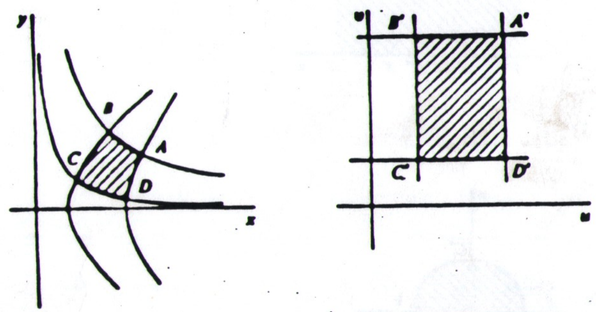


Figure 2. $w = z^2$.

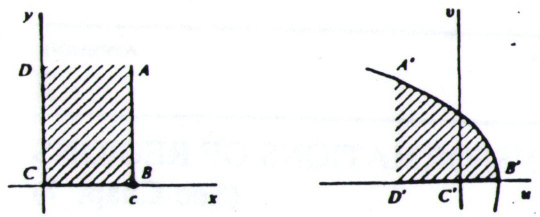


Figure 3. $w = z^2$; $A'B'$ on parabola $v^2 = -4c^2(u - c^2)$.

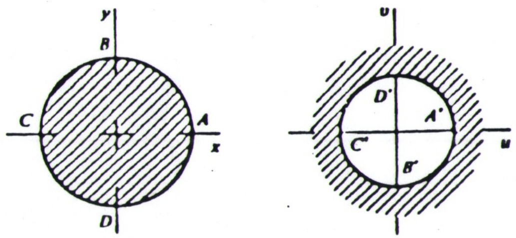


Figure 4. $w = 1/z$.

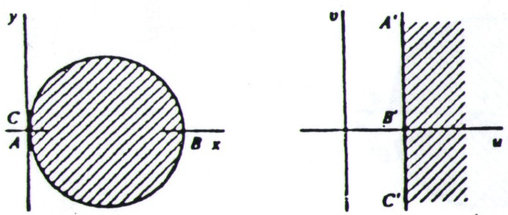


Figure 5. $w = 1/z$.

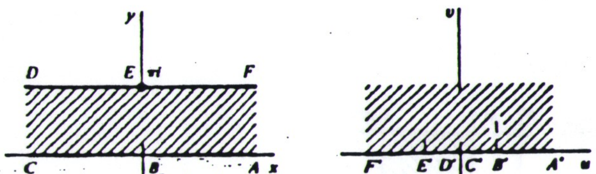
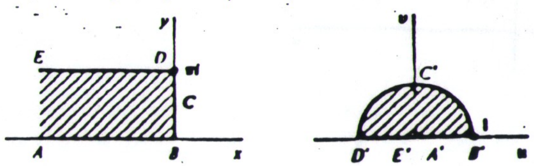


Figure 6. $w = \exp z$.



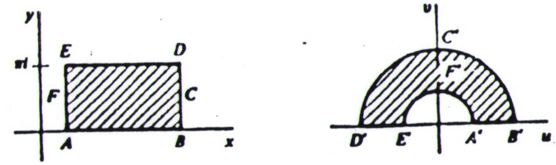


Figure 8. $w = \exp z$.

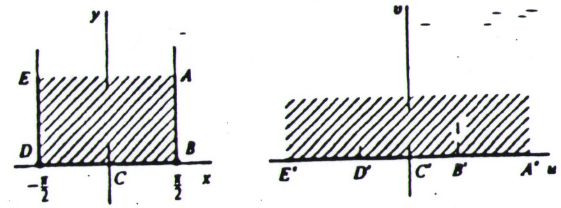


Figure 9. $w = \sin z$.

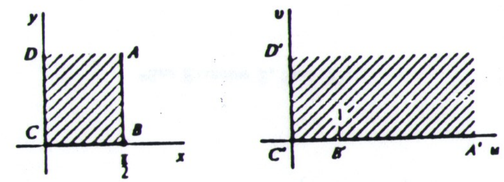


Figure 10. $w = \sin z$.

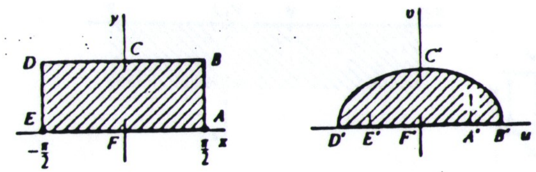


Figure 11. $w = \sin z$; BCD on line $y = b$ $(b > 0)$, $B'C'D'$ on ellipse $\frac{u^2}{\cosh^2 b} + \frac{v^2}{\sinh^2 b} = 1$.

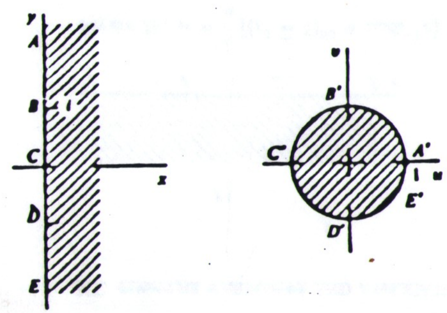


Figure 12. $w = \frac{z - 1}{\ldots}$.

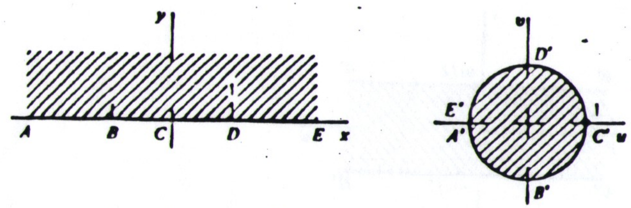


Figure 13. $w = \dfrac{i - z}{i + z}$.

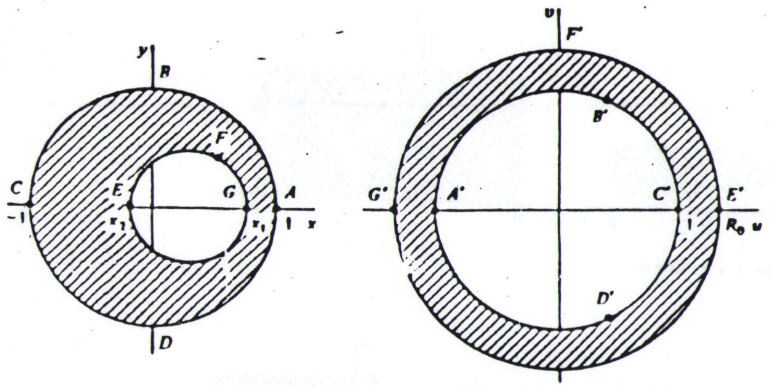


Figure 14. $w = \dfrac{z - a}{az - 1}$; $a = \dfrac{1 + x_1 x_2 + \sqrt{(1 - x_1^2)(1 - x_2^2)}}{x_1 + x_2}$.

$$R_0 = \frac{1 - x_1 x_2 + \sqrt{(1 - x_1^2)(1 - x_2^2)}}{x_1 - x_2} \quad (a > 1 \text{ and } R_0 > 1 \text{ when } -1 < x_2 < x_1 < 1).$$

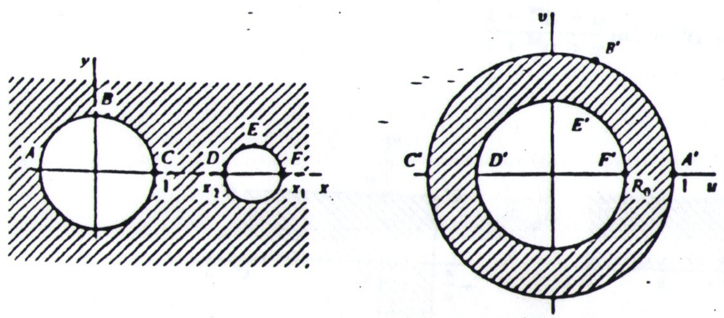


Figure 15. $w = \dfrac{z - a}{az - 1}$; $a = \dfrac{1 + x_1 x_2 + \sqrt{(x_1^2 - 1)(x_2^2 - 1)}}{x_1 + x_2}$,

$$R_0 = \frac{x_1 x_2 - 1 - \sqrt{(x_1^2 - 1)(x_2^2 - 1)}}{x_1 - x_2} \quad (x_2 < a < x_1 \text{ and } 0 < R_0 < 1 \text{ when } 1 < x_2 < x_1).$$

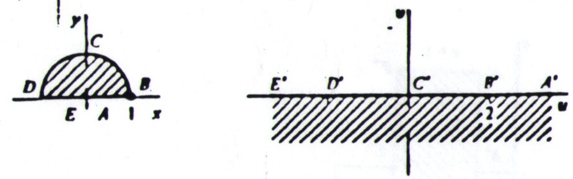


Figure 16. $w = z + \dfrac{1}{z}$.

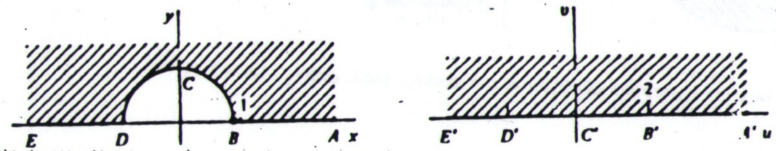


Figure 17. $w = z + \dfrac{1}{z}$.

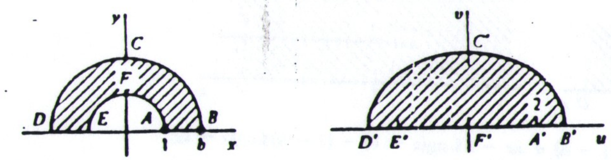


Figure 18. $w = z + \dfrac{1}{z}$; $B'C'D'$ on ellipse $\dfrac{u^2}{(b + 1/b)^2} + \dfrac{v^2}{(b - 1/b)^2} = 1$.

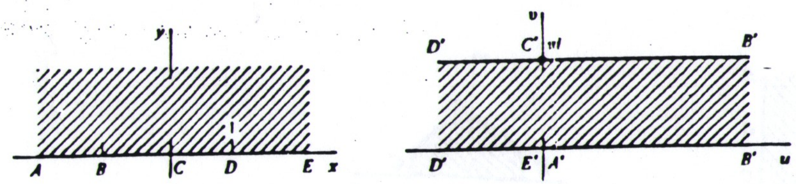


Figure 19. $w = \text{Log}\dfrac{z - 1}{z + 1}$; $z = -\coth\dfrac{w}{2}$.

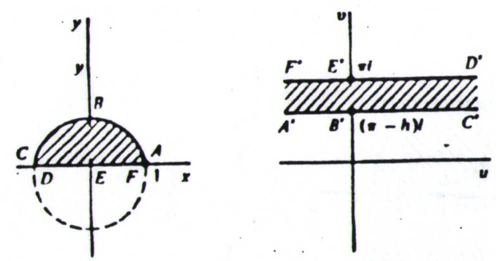


Figure 20. $w = \text{Log}\dfrac{z - 1}{z + 1}$; ABC on circle $x^2 + (y + \cot h)^2 = \csc^2 h \quad (0 < h < \pi)$.

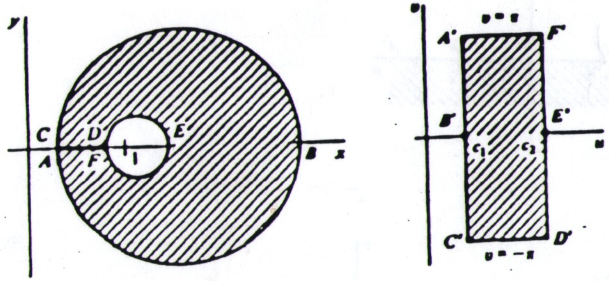


Figure 21. $w = \operatorname{Log}\frac{z+1}{z-1}$; centers of circles at $z = \coth c_n$, radii: $\operatorname{csch} c_n$ $(n = 1, 2)$.

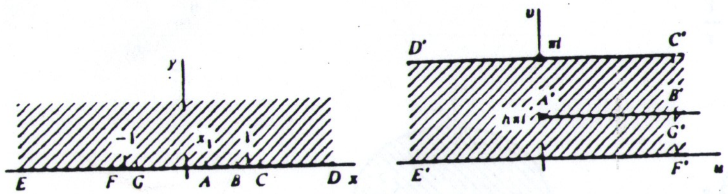


Figure 22. $w = h\ln\frac{h}{1-h} + \ln 2(1-h) + i\pi - h\operatorname{Log}(z+1) - (1-h)\operatorname{Log}(z-1)$;

$x_1 = 2h - 1.$

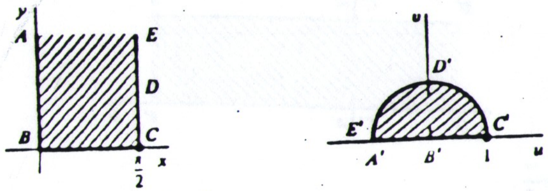
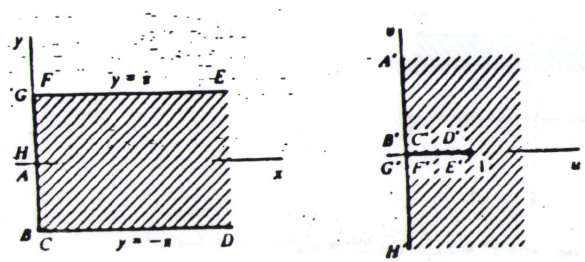


Figure 23. $w = \left(\tan\frac{z}{2}\right)^2 = \frac{1-\cos z}{1+\cos z}$.



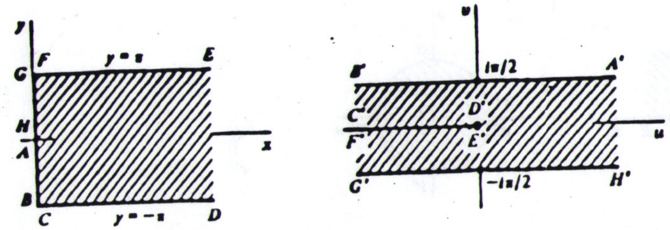


Figure 25. $w = \operatorname{Log}\left(\coth\frac{z}{2}\right)$.

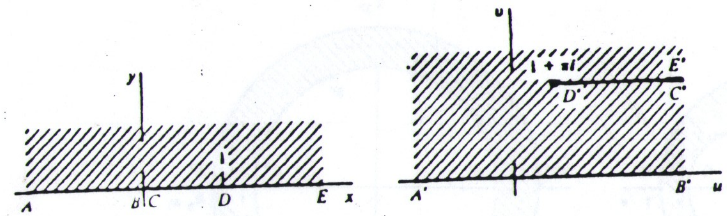


Figure 26. $w = \pi i + z - \operatorname{Log} z$.

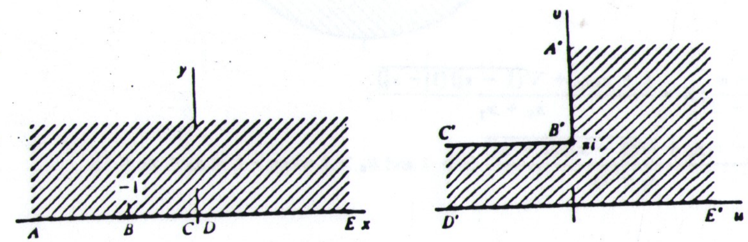


Figure 27. $w = 2(z+1)^{1/2} + \operatorname{Log}\frac{(z+1)^{1/2}-1}{(z+1)^{1/2}+1}$.

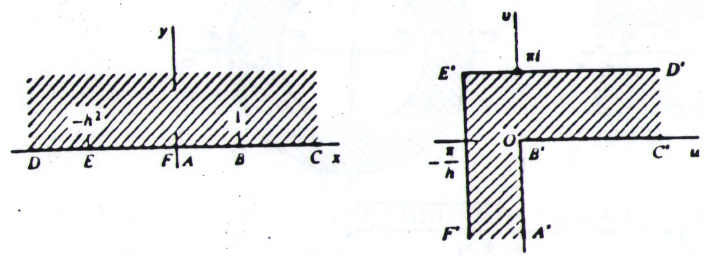


Figure 28. $w = \frac{i}{h}\operatorname{Log}\frac{1+iht}{\ldots} + \operatorname{Log}\frac{1+t}{\ldots}; t = \left(\frac{z-1}{\ldots}\right)^{1/2}.$