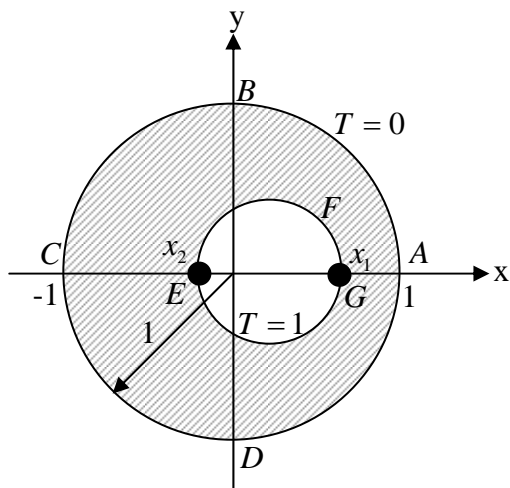
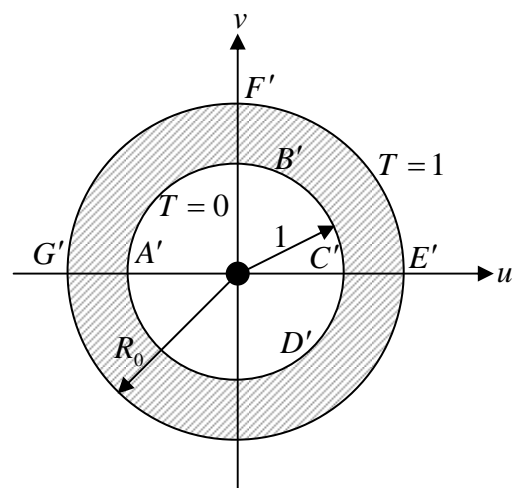


程式 109 Laplace 偏心圓



$$z = x + yi$$

$$T(x, y)$$



$$w = u + vi$$

$$T(x, y) = T(x(u, v), y(u, v)) = \bar{T}(u, v)$$

$$\bar{T}(u, v) = \frac{\ln(r)}{\ln(2)}$$

$$w = \frac{z - a}{az - 1} ; \quad a = \frac{1 + x_1x_2 + \sqrt{(1-x_1^2)(1-x_2^2)}}{x_1 + x_2} ;$$

$$R_0 = \frac{1 - x_1x_2 + \sqrt{(1-x_1^2)(1-x_2^2)}}{x_1 - x_2} \quad (a > 1 \text{ and } R_0 > 1 \text{ when } -1 < x_2 < x_1 < 1)$$

Set $x_2 = 0$, $x_1 = \frac{4}{5}$, find R_0 and a .

$$R_0 = 2, \quad a = 2.$$

References

1. J. W. Brown, R. V. Churchill, complex variables and applications, McGraw-Hill, 1996. Page 373.