

Observe that

$$\exp(\mathfrak{W}_{mn}(z)) = \exp(W_m(z)) / \exp(W_n(z))$$
$$=$$

the branch cut for W_{-1} is $(-\infty, 0]$. Further, both branches are closed on the top, meaning that for $x \leq -1/e$

$$W_0(x) = \lim_{y \downarrow 0} W_0(x + iy) ,$$

and for $x < 0$

$$W_{-1}$$

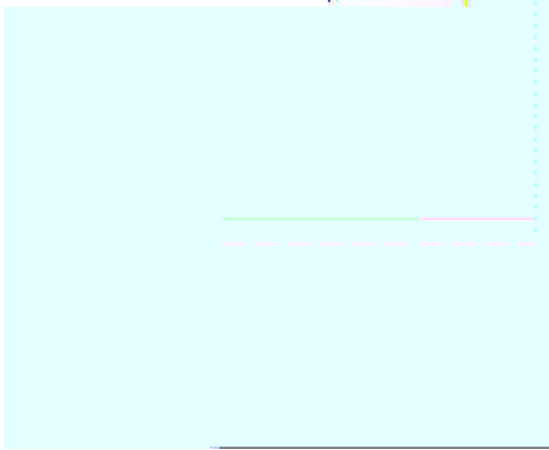


Figure 3. The domain of \mathfrak{W} (the z -plane). The branch cut is shown as two lines, one representing the upper side (ABC) and one representing the lower side (DEF). The points B and E are either side of $z = -1/e$.

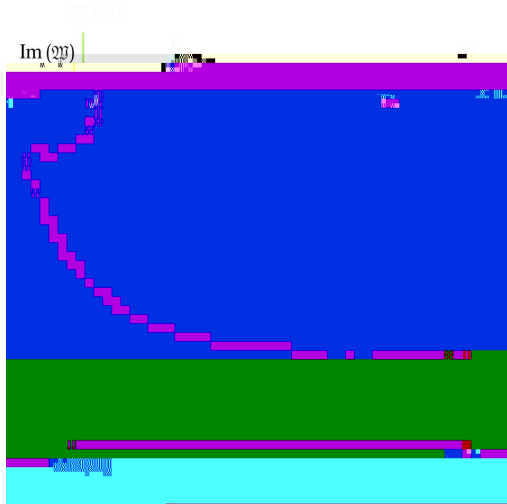


Figure 4. The range of $\mathfrak{W}_{0(-1)}(z)$. The letters correspond to the points labelled by the same letters in the domain of \mathfrak{W} , shown in figure 3. Notice that the image lines BA and EF , together with the images of the other axes in the domain converge to 2π as a result of (14).

REFERENCES