Table 19.1 Figures From

MATHEMATICAL METHODS for Scientists and Engineers

Donald A. McQuarrie

For the Novice Acrobat User or the Forgetful

When you opened this file you should have seen a slightly modified cover of the book *Mathematical Methods for Scientists and Engineers* by Donald A. McQuarrie, a menu bar at the top, some index markers at the left hand margin, and a scroll bar at the right margin.

Select the **View** menu item in the top menu and be sure **Fit in Window** and **Single Page** are selected. Select the **Window** menu item and be sure **Bookmarks** and **Thumbnails** ARE NOT selected.

You can and probably should make the top menu bar disappear by pressing the function key F9. Pressing this key (F9) again just toggles the menu bar back on. You may see another tool bar that is controlled by function key F8. Press function key F8 until the tool bar disappears.

In the upper right hand corner margin of the window containing this text you should see a few small boxes. DO NOT move your mouse to the box on the extreme right and click in it; your window will disappear! Move your mouse to the second box from the right and click (or left click); the window containing this text should enlarge to fill the screen. Clicking again in this box will shrink the window; clicking again will return the display to full screen.

The prefered means of navigation to any desired figure is controlled by the scroll bar in the column at the extreme right of the screen image. Move your mouse over the scroll bar slider, click, and hold the mouse button down. A small window will appear with the text "README (2 of 16)". Continuing to hold down the mouse button and dragging the button down will change the text in the small window to something like "19.1.4 (6 of 16)". Releasing the mouse button at this point moves you to the table entry Table 19.1.4 of Table 19.1. The (6 of 16) indicates that Table 19.1.4 resides on page 6 of the 16 pages of this document.

ANIMATIONS

There are no animations in this table.

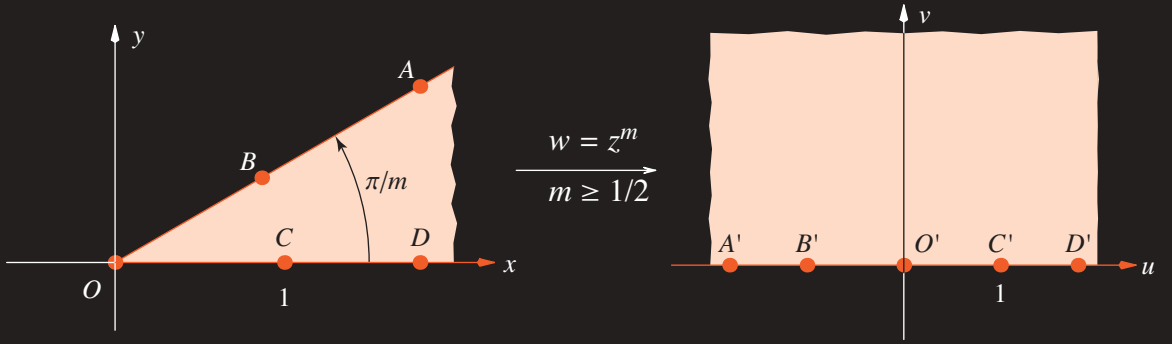


Table 19.1.1
An infinite sector of angle π/m onto the upper half plane by $w = z^m$, $m \geq 1/2$.

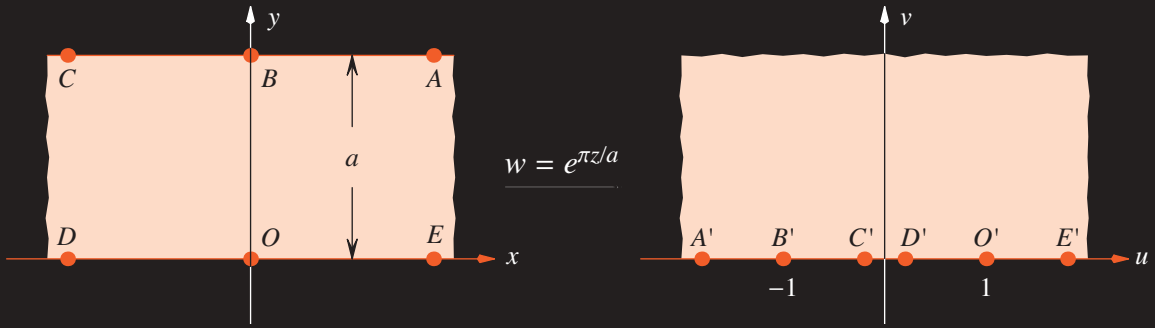


Table 19.1.2

The semi-infinite horizontal strip $0 \le y \le a$ onto the upper half plane by $w = e^{\pi z/a}$.

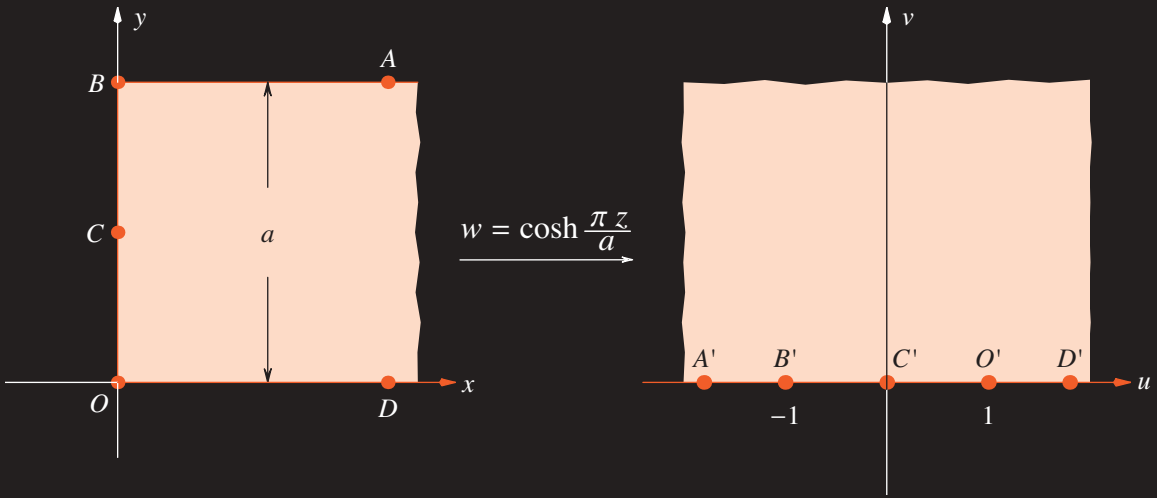


Table 19.1.3
The semiinfinite horizontal strip $0 \le x \le \infty$, $0 \le y \le a$ onto the upper half plane by $w = \cosh \frac{\pi z}{a}$.

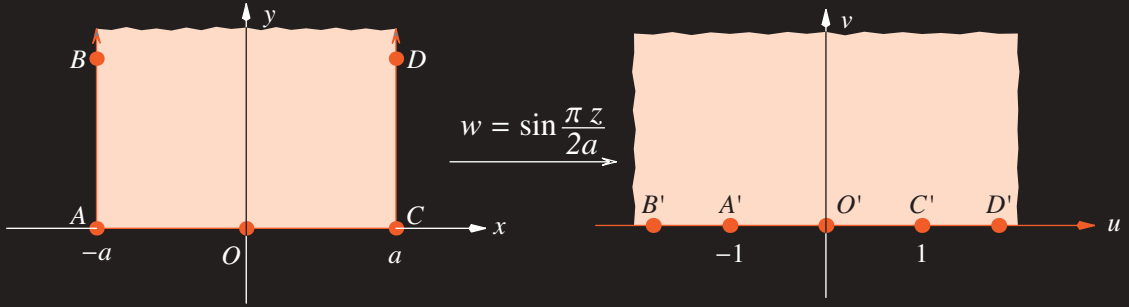


Table 19.1.4

The semi-infinite vertical strip $-a \le x \le a, 0 \le y \le \infty$ onto the upper half plane by $w = \sin \frac{\pi z}{2a}$.

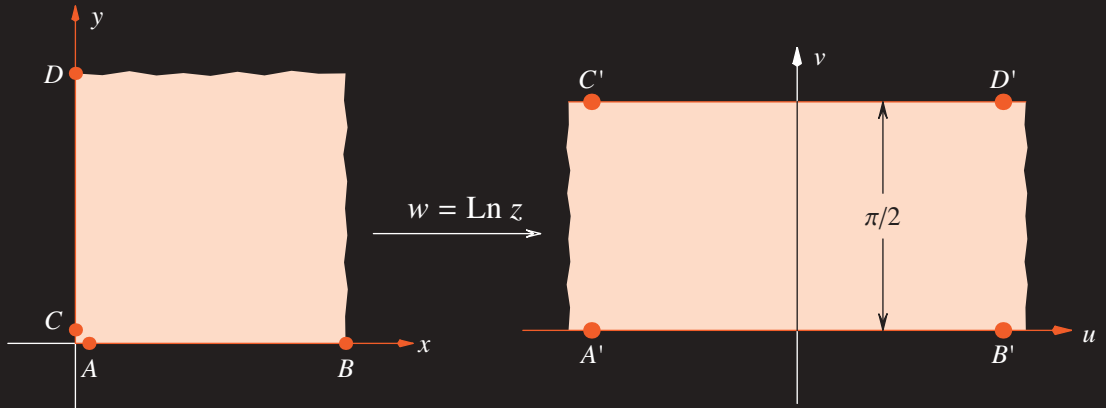


Table 19.1.5

The first quadrant onto the infinite horizontal strip $0 \le v \le \pi/2$ by Ln z.

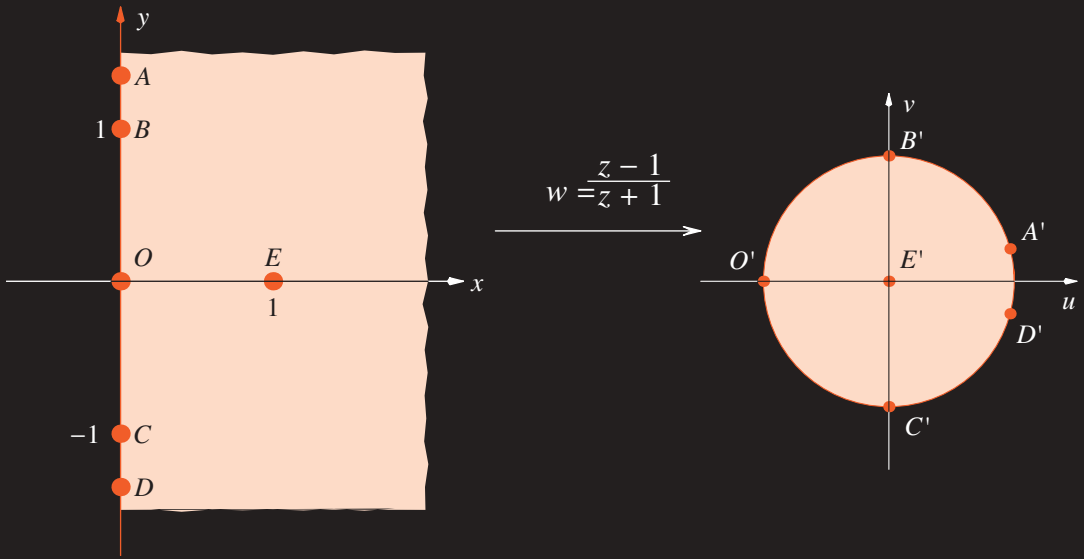


Table 19.1.6
The positive half plane into a unit disk centered at $u = 0$, $v = 0$ by $w = (z - 1)/(z + 1)$.

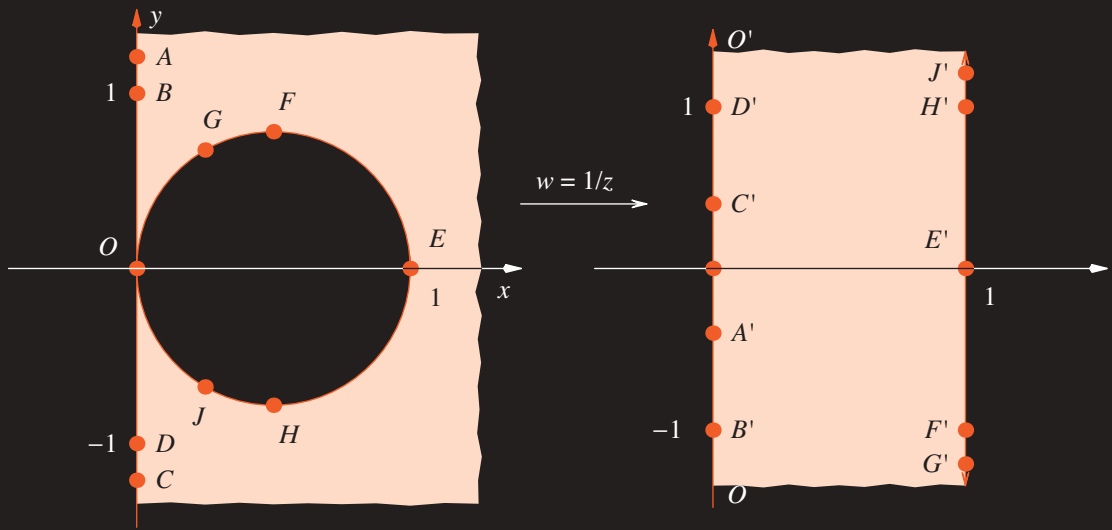


Table 19.1.7
The region exterior to the unit disk $|z - 1/2| \le 1/2$ in the positive x half plane into the infinite vertical strip $0 \le u \le 1$ by $w = 1/z$.

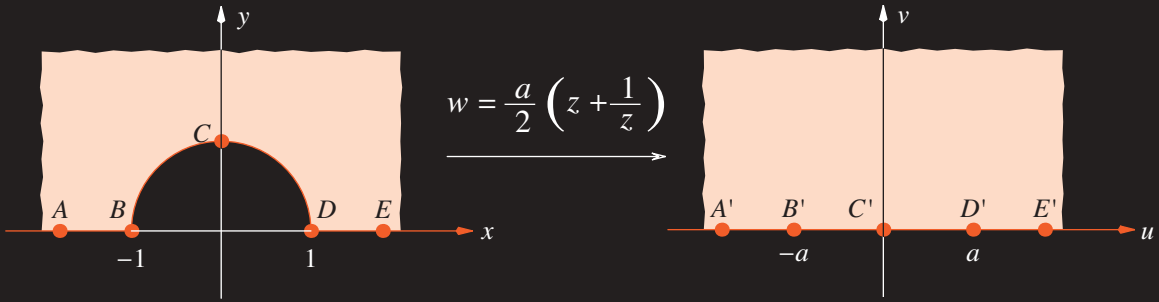


Table 19.1.8

The upper half plane with the half disk $|z| \le 1, 0 \le \theta \le \pi$ removed onto the upper half plane by $w = \frac{a}{2}\left(z + \frac{1}{z}\right)$.

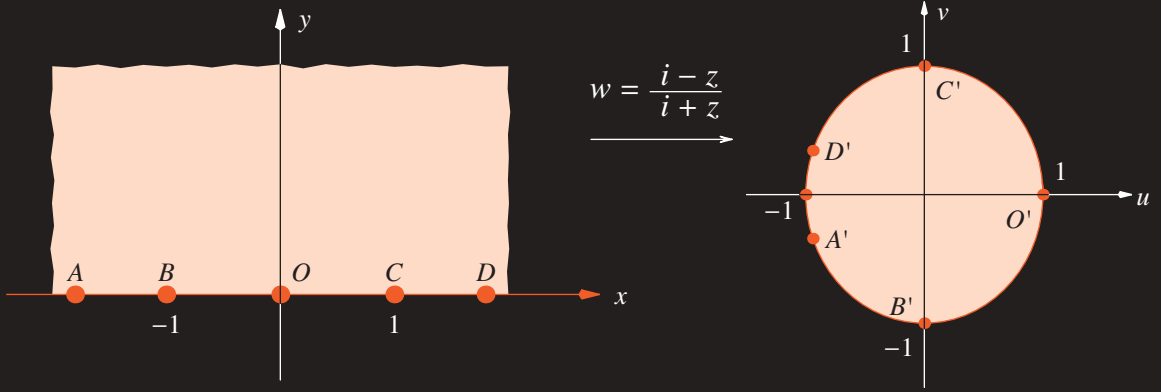
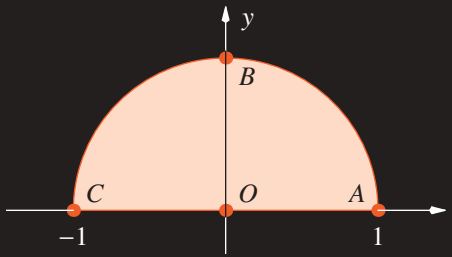


Table 19.1.9

The upper half plane into the unit disk centered at $u = 0$, $v = 0$ by $w = \frac{i - z}{i + z}$.



$$w = \left(\frac{1+z}{1-z}\right)^2$$

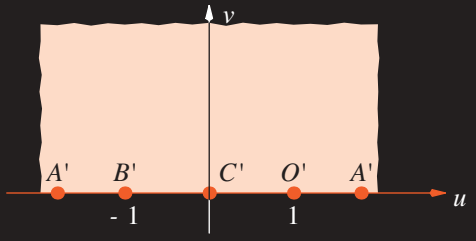


Table 19.1.10

The interior of the half disk $|z| \le 1$, $0 \le \theta \le \pi$ onto the upperhalf plane by $w = \left(\frac{1+z}{1-z}\right)^2$.

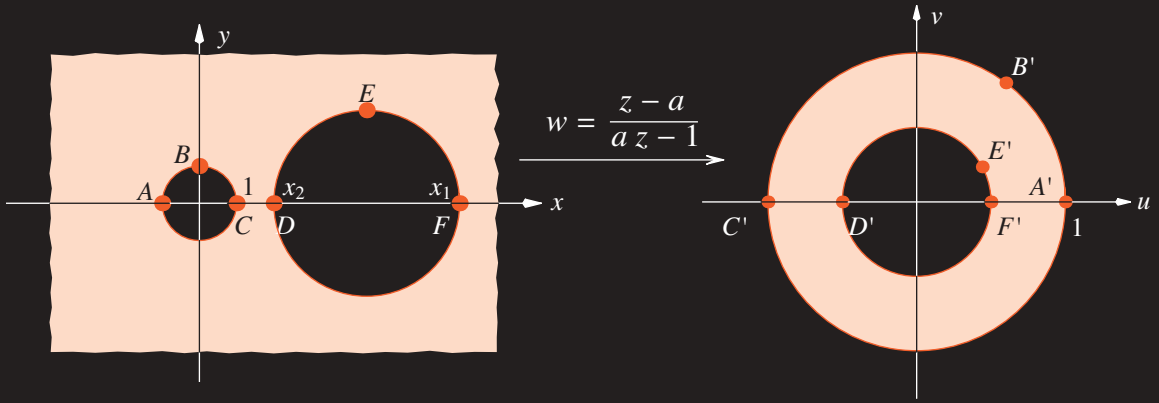


Table 19.1.11

The region between two parallel cylinders onto an annulus by $w = \frac{z-a}{a\,z-1}$ where $a =$

$\frac{1 + x_1\,x_2 + \sqrt{(x_1^2 - 1)(x_2^2 - 1)}}{x_1 + x_2}$ and $R = \frac{x_1\,x_2 - 1 - \sqrt{(x_1^2 - 1)(x_2^2 - 1)}}{x_1 - x_2}$ with $1 < x_2 < a < x_1$ and $0 < R < 1$.

The radius of the outer circle in the w-plane is 1 and the radius of the inner circle is $R < 1$.

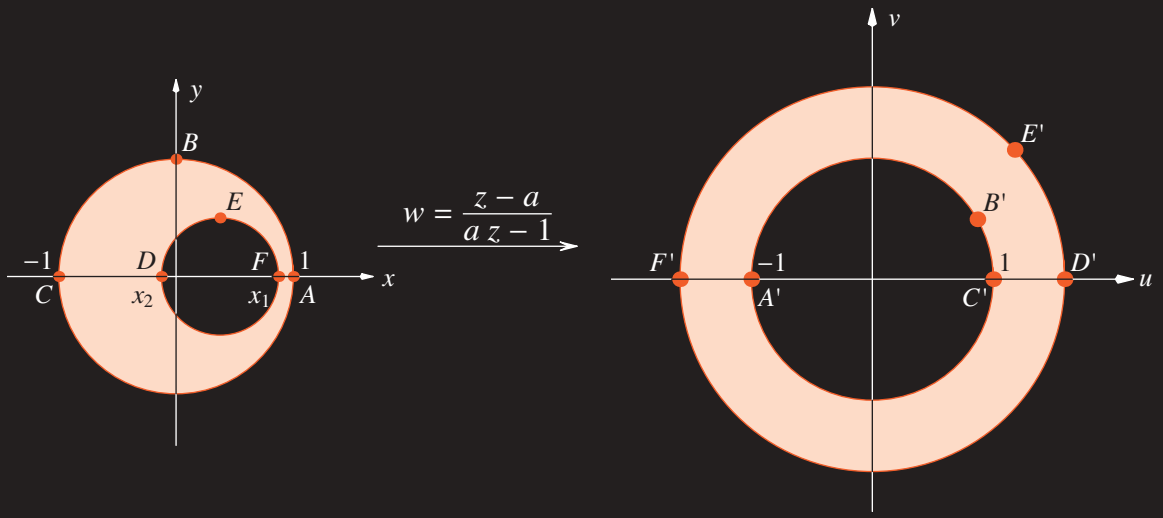


Table 19.1.12

The region between two parallel cylinders (one inside the other) onto an annulus by $w = \frac{z - a}{az - 1}$ where $a = \frac{1 + x_1 x_2 + \sqrt{(1 - x_1^2)(1 - x_2^2)}}{x_1 + x_2}$ and $R = \frac{1 - x_1 x_2 + \sqrt{(1 - x_1^2)(1 - x_2^2)}}{x_1 - x_2}$ with $a > 1$ and $R > 1$ when $-1 < x_2 < x_1 < 1$. The radius of the outer circle in the w-plane is $R > 1$ and the radius of the inner circle is 1.

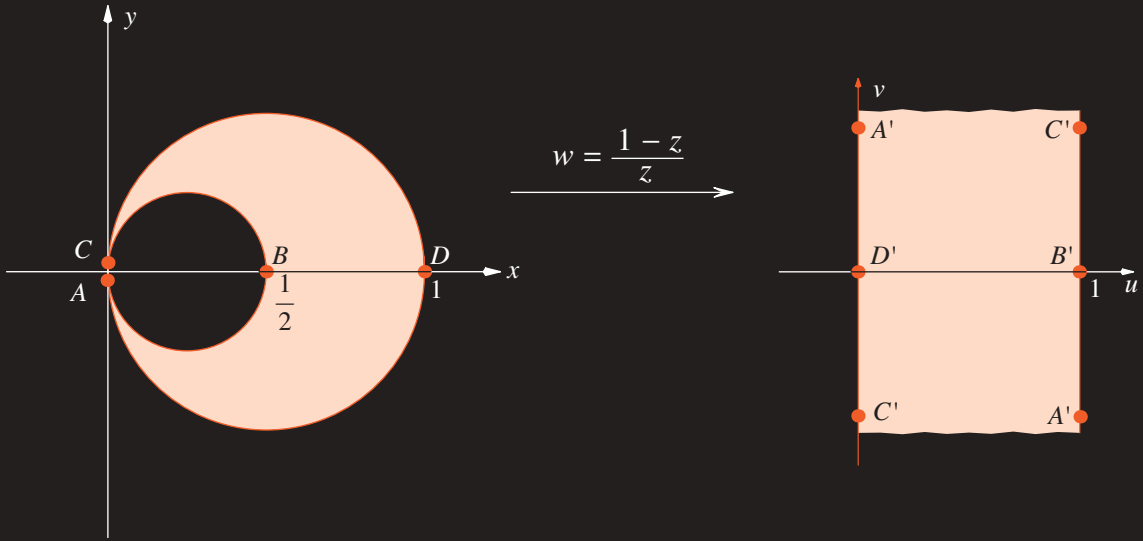


Table 19.1.13
The region between two parallel cylinders (one inside the other) onto the infinite vertical strip $0 \le u \le 1$ by $w = (1 - z)/z$.

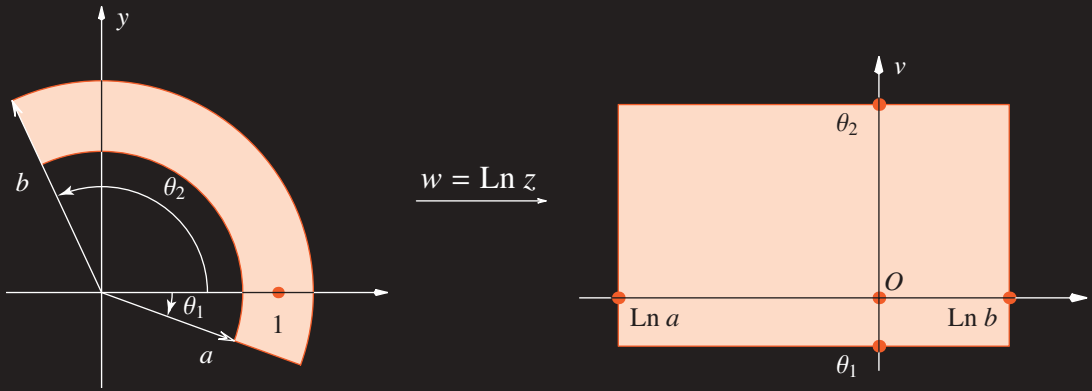


Table 19.1.14

An annular sector $R_1 \le r \le R_2$, $\theta_1 + \theta_2 < 2\pi$ into a rectangle by $w = \text{Ln } z$.