Romberg Integration

Like the trapezoidal rule but better!

$$R_{i,m+1} = R_{i,m} + \frac{1}{4^m - 1}(R_{i,m} - R_{i-1,m}), \tag{5.51}$$

$$\begin{array}{ccccccc}
I_1 \equiv R_{1,1} & & & & & & \\
 & \searrow & & & & & \\
I_2 \equiv R_{2,1} & \rightarrow & R_{2,2} & & & & \\
 & \searrow & & \searrow & & & \\
I_3 \equiv R_{3,1} & \rightarrow & R_{3,2} & \rightarrow & R_{3,3} & & \\
 & \searrow & & \searrow & & \searrow & \\
I_4 \equiv R_{4,1} & \rightarrow & R_{4,2} & \rightarrow & R_{4,3} & \rightarrow & R_{4,4} \\
 & \searrow & & \searrow & & \searrow & \searrow
\end{array}$$