Failure of Induction (Borwein)

In[•]:=
$$\text{Table}\left[\int_0^\infty \left(\prod_{k=0}^{\max} \frac{\text{Sin}\left[\frac{x}{2k+1}\right]}{\frac{x}{2k+1}}\right) dx,\ \{\max,\ 6\}\right]$$

Out[•]=
$$\left\{\frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}\right\}$$

In[•]:=
$$\int_0^\infty \left(\prod_{k=0}^{8} \frac{\text{Sin}\left[\frac{x}{2k+1}\right]}{\frac{x}{2k+1}}\right) dx$$

$$\int_0^\infty \left(\prod_{k=0}^{8} \frac{\text{Sin}\left[\frac{x}{2k+1}\right]}{\frac{x}{2k+1}}\right) dx;$$

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N[% - Pi / 2]
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Out[•]=
$$\frac{17\,708\,695\,183\,056\,190\,642\,497\,315\,530\,628\,422\,295\,569\,865\,119\,\pi}{35\,417\,390\,788\,301\,195\,294\,898\,352\,987\,527\,510\,935\,040\,000\,000}$$

Out[•]=
$$-1.87245 \times 10^{-8}$$