

TOOL: An impulse function positioned at $t = a$ convolved with a function, $f(t)$, replicates $f(t)$ with its origin moved to $t = a$. In other words, the result of the convolution is $f(t - a)$.

$$\delta(t - a) * f(t) = \int_{-\infty}^{\infty} \delta(\tau - a) f(t - \tau) d\tau = f(t - a)$$

Graphical view:

