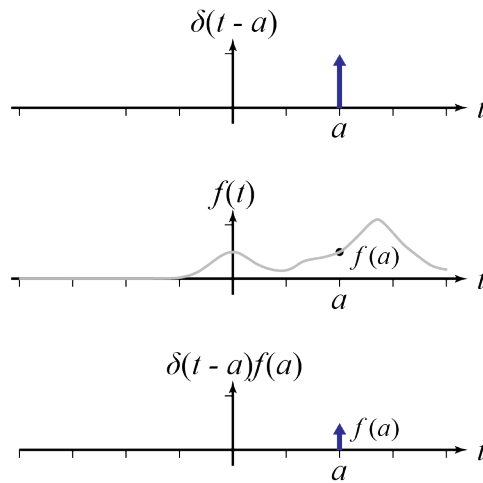


TOOL: An impulse function multiplied by a function yields an impulse whose area is equal to the value of the function at the location in time of the impulse function.

$$\delta(t - a)f(t)dt = f(a)\delta(t)$$

Graphical view:



Note that, since the impulse function is zero everywhere except at $t = a$, the value of $f(a)$ is the only value of $f(t)$ that could possibly affect the product of the impulse and the function. Thus, we get $f(a)\delta(t)$ as the product. The value of $f(a)$ is written next to the impulse to indicate the exact value of the area. The height of the arrow also gives a visual indication of the area of the impulse.