DEF: The Fourier transform of $x(t)$ is $X(f)$:

$$X(f) \equiv \int_{-\infty}^{\infty} x(t)e^{-j2\pi ft}dt$$

DEF: The inverse Fourier transform of $X(f)$ is $x(t)$:

$$x(t) \equiv \int_{-\infty}^{\infty} X(f)e^{j2\pi ft}df$$

REF: Ronald Bracewell, *The Fourier Transform and its Applications*, 2nd Ed., New York, NY: McGraw-Hill, 1978.