Special signals:

- Sinc: $$\mathrm{sinc}(t) = \frac{\sin 2\pi t}{2\pi t}$$
- Delta function: $$\delta(t) = \begin{cases} n = 0 & \infty \\ otherwise & 0 \end{cases} \quad \int_{-\infty}^{\infty} f(t)\delta(t)dt = f(0)$$
- Unit step (CT): $$u(t) = \begin{cases} t \geq 0 & 1 \\ otherwise & 0 \end{cases}$$
- Unit sample: $$\delta[n] = \begin{cases} n = 0 & 1 \\ otherwise & 0 \end{cases}$$
- Unit step (DT): $$u[n] = \begin{cases} n \geq 0 & 1 \\ otherwise & 0 \end{cases}$$

Note: $\delta[t] = d/dt\ u[t]$ and $d[n] = u[n] - u[n-1]$

Special signals:
Complex exponentials

$$\exp(i\omega t) = \cos\omega t + i\sin\omega t$$