The purpose of this table is so that you don't need to memorize details of things related to the named distributions we covered in the course. You still need to know what everything actually means.

Note that Geometric(p) is just NegBin($1, p$) and Exp(λ) is Gamma($1, \lambda$).

In the table $q = 1 - p$ was used to save space.

Distribution	pmf/pdf	Support	$E(X)$	Var(X)	$m(t) = E(e^{tX})$
Binomial(n, p)	$\binom{n}{k} p^k q^{n-k}$	$k \in \{0, \ldots, n\}$	np	npq	$(q + pe^t)^n$
NegBin(r, p)	$\binom{k-1}{r-1} p^r q^{k-r}$	$k \in \{r, r+1, \ldots\}$	$\frac{r}{p}$	$\frac{rq}{p}$	$\left(\frac{pe^t}{1-qe^t}\right)^r$
Poisson	$\frac{\lambda^k}{k!} e^{-\lambda}$	$k \in \{0, 1, 2, \ldots\}$	λ	λ	$e^{\lambda(e^t - 1)}$
Uniform[a, b]	$(b-a)^{-1}$	$a < x < b$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$	$\frac{e^{bt} - e^{at}}{t(b-a)}$
Gamma(α, λ)	$x > 0$	$\frac{\lambda^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\lambda x}$	α/λ	α/λ^2	$\left(\frac{\lambda}{\lambda - t}\right)^\alpha$
$N(\mu, \sigma^2)$	$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(-\frac{1}{2}\frac{(x-\mu)^2}{\sigma^2}\right)$	$-\infty < x < \infty$	μ	σ^2	$\exp(\mu t + \sigma^2 t^2/2)$
Cauchy	$\frac{1}{\pi}\frac{1}{1+x^2}$	$-\infty < x < \infty$	n/a	n/a	n/a