Sum. stat.	location: $\bar{x}=\frac{\sum_i x_i}{n}$, Q_1, Q_2, Q_3, LT=Q_1-1.5×IQR, UT=Q_3+1.5×IQR, mode spread: $s^2=\frac{\sum_i x_i^2-\frac{(\sum_i x_i)^2}{n}}{n-1}$, range=max-min, IQR=$Q_3$-$Q_1$, outliers$\notin$(LT,UT) plot: stem-and-leaf plot, boxplot, histogram
Prob.	$P(A\cup B)=P(A)+P(B)-P(A\cap B)$ If $P(A\cap B)=0$, A & B mutually exclusive & $P(A\cup B)=P(A)+P(B)$ $P(A\cap B)=P(A)P(B\mid A)$ If $P(B\mid A)=P(B)$, A & B independent & $P(A\cap B)=P(A)P(B)$

	Normal (continuous)	Binomial (discrete)
Dist.	$X\sim N(\mu,\sigma^2)$ $X_1\pm X_2\sim N(\mu_1\pm\mu_2,\sigma_1^2+\sigma_2^2)$ $P(X<x)=P(Z<\frac{x-\mu}{\sigma})$	$X\sim B(n,p)$ $E(X)=np$; $Var(X)=np(1-p)$ $P(X=r)=\binom{n}{r}p^r(1-p)^{n-r}$
Sam. dist.	$\bar{X}\sim N(\mu,\frac{\sigma^2}{n})$	$\hat{p}=\frac{X}{n}\overset{CLT}{\sim}N(p,\frac{p(1-p)}{n})$ if n large
One sam.	One sample or matched pairs t-test $H_0:\mu=\mu_0$ (normal, σ^2 unknown)	One sample Z-test $H_0: p=p_0$ (n large)
CI: HT:	$\bar{x}\mp t_{n-1,\alpha/2}\frac{s}{\sqrt{n}}$ t-test: $t_o=\frac{\bar{x}-\mu_0}{s/\sqrt{n}}\sim t_{n-1}$	$\hat{p}\mp z_{1-\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ Z-test: $z_o=\frac{\hat{p}-p_0}{\sqrt{p_0(1-p_0)}/\sqrt{n}}\sim N(0,1)$
Two sam.	Two sample t-test H_0: $\mu_1=\mu_2$ (normals, σ_i^2 unk. & equal)	Two sample Z-test H_0: $p_1=p_2$ (n_1, n_2 large)
CI: HT:	$\bar{x}_1-\bar{x}_2\mp t_{n_1+n_2-2,\alpha/2}\,s_p\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}$ t-test: $t_o=\frac{\bar{x}_1-\bar{x}_2}{s_p\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}\sim t_{n_1+n_2-2}$ $s_p^2=\frac{(n_1-1)s_1^2+(n_2-1)s_2^2}{n_1+n_2-2}$	$\hat{p}_1-\hat{p}_2\mp z_{1-\alpha/2}\sqrt{\hat{p}(1-\hat{p})}\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}$ Z-test: $z_o=\frac{\hat{p}_1-\hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})}\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}\sim N(0,1)$ $\hat{p}=\frac{X_1+X_2}{n_1+n_2}$

	One var.: H_0: $p_i=p_{i0}$ ($E_i=np_{i0}\geq 5$)	Two var.: H_0: $p_{ij}=p_ip_j$ ($E_{ij}=\frac{r_ic_j}{n}\geq 5$)
Cate.	χ^2-test: $\chi_o^2=\sum_i\frac{(x_i-np_{i0})^2}{np_{i0}}\sim\chi^2_{g-1}$	χ^2-test: $\chi_o^2=\sum_{i,j}\frac{(x_{ij}-\frac{r_ic_j}{n})^2}{\frac{r_ic_j}{n}}\sim\chi^2_{(r-1)(c-1)}$

Reg.	$L_{xy}=\sum_i x_iy_i-\frac{1}{n}(\sum_i x_i)(\sum_i y_i)$ $L_{xx}=\sum_i x_i^2-\frac{1}{n}(\sum_i x_i)^2$ $L_{yy}=\sum_i y_i^2-\frac{1}{n}(\sum_i y_i)^2$ Cor.: $r=\frac{L_{xy}}{\sqrt{L_{xx}L_{yy}}}$, r^2=% of fit	Reg. line: $y=a+bx$ $b=\frac{L_{xy}}{L_{xx}}$, $a=\bar{y}-b\bar{x}$ Test H_0:$\beta=0$: $t_o=\frac{b}{s/\sqrt{L_{xx}}}\sim t_{n-2}$ $s^2=\frac{L_{yy}-bL_{xy}}{n-2}$