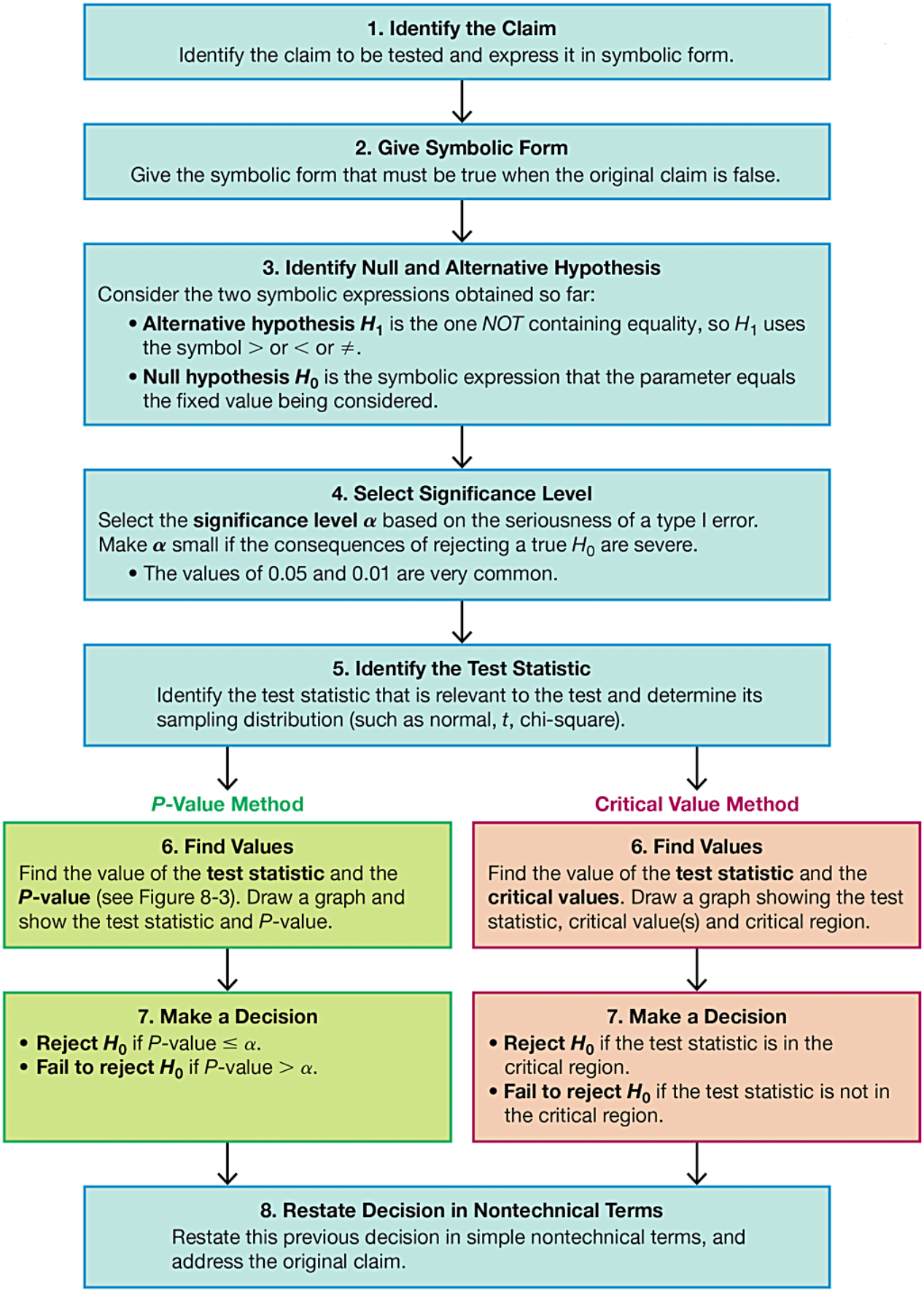
Hypothesis Testing Steps

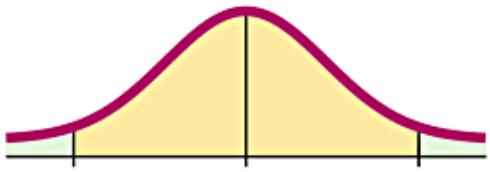


Sampling Distributions and Test Stastics

Parameter	Sampling Distribution	Requirements	Test Statistic
Proportion p	Normal (z)	$np \geq 5$ and $nq \geq 5$	$z = \dfrac{\hat{p} - p}{\sqrt{\dfrac{pq}{n}}}$
Mean $\boldsymbol{\mu}$	t	$\boldsymbol{\sigma}$ not known and normally distributed population or $\boldsymbol{\sigma}$ not known and $n > 30$	$t = \dfrac{\bar{x} - \mu}{\dfrac{s}{\sqrt{n}}}$
Mean $\boldsymbol{\mu}$	Normal (z)	$\boldsymbol{\sigma}$ known and normally distributed population or $\boldsymbol{\sigma}$ known and $n > 30$	$z = \dfrac{\bar{x} - \mu}{\dfrac{\sigma}{\sqrt{n}}}$
St. dev. $\boldsymbol{\sigma}$ or variance $\boldsymbol{\sigma^2}$	χ^2	Strict requirement: normally distributed population	$\chi^2 = \dfrac{(n-1)s^2}{\sigma^2}$

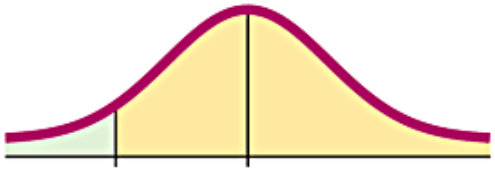
Types of Tests

- **Two-tailed test:** The critical region is in the two extreme regions (tails) under the curve.



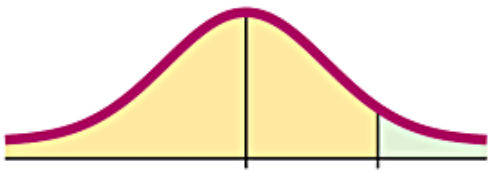
Sign used in H_1: $\neq$
Two-tailed test

- **Left-tailed test:** The critical region is in the extreme left region (tail) under the curve.



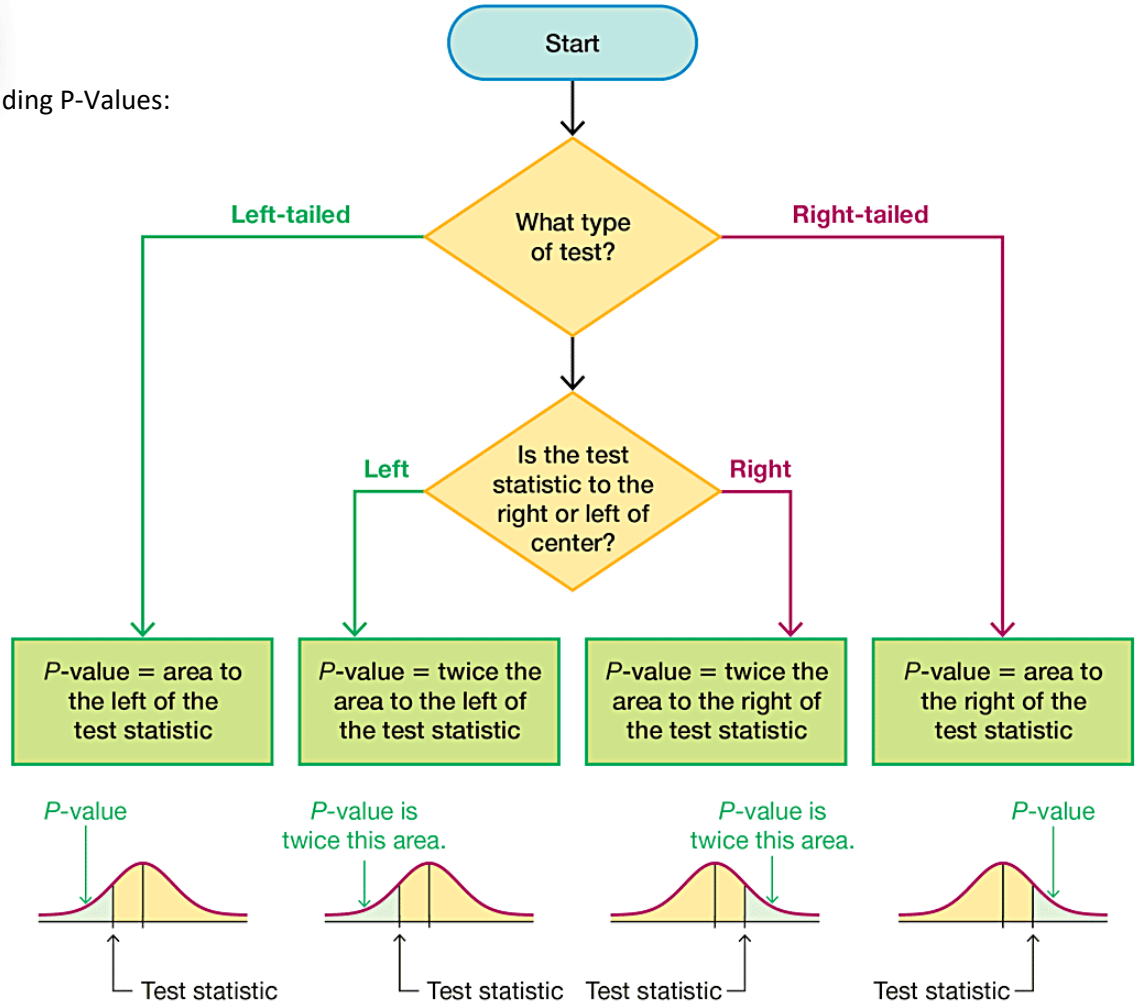
Sign used in H_1: $<$
Left-tailed test

- **Right-tailed test:** The critical region is in the extreme right region (tail) under the curve.



Sign used in H_1: $>$
Right-tailed test

Finding P-Values:



Conclusions: