

P-value Calculation

If the test statistic is z ,

Research Hypothesis	Rejection Region	P-value
$H_a: \theta > \theta_o$	$z > z_\alpha$	$P(z > z_{\text{calculated}})$
$H_a: \theta < \theta_o$	$z < -z_\alpha$	$P(z < z_{\text{calculated}})$
$H_a: \theta \neq \theta_o$	$z < -z_{\alpha/2}$ or $z > z_{\alpha/2}$	$2P(z > z_{\text{calculated}})$
$H_a: \mu > \mu_o$	$z > z_\alpha$	$P(z > z_{\text{calculated}})$
$H_a: \mu < \mu_o$	$z < -z_\alpha$	$P(z < z_{\text{calculated}})$
$H_a: \mu \neq \mu_o$	$z < -z_{\alpha/2}$ or $z > z_{\alpha/2}$	$2P(z > z_{\text{calculated}})$
$H_a: p > p_o$	$z > z_\alpha$	$P(z > z_{\text{calculated}})$
$H_a: p < p_o$	$z < -z_\alpha$	$P(z < z_{\text{calculated}})$
$H_a: p \neq p_o$	$z < -z_{\alpha/2}$ or $z > z_{\alpha/2}$	$2P(z > z_{\text{calculated}})$

If the test statistic is t ,

Research Hypothesis	Rejection Region	P-value
$H_a: \theta > \theta_o$	$t > t_\alpha$	$P(t > t_{\text{calculated}})$
$H_a: \theta < \theta_o$	$t < -t_\alpha$	$P(t < t_{\text{calculated}})$
$H_a: \theta \neq \theta_o$	$t < -t_{\alpha/2}$ or $t > t_{\alpha/2}$	$2P(t > t_{\text{calculated}})$
$H_a: \mu > \mu_o$	$t > t_\alpha$	$P(t > t_{\text{calculated}})$
$H_a: \mu < \mu_o$	$t < -t_\alpha$	$P(t < t_{\text{calculated}})$
$H_a: \mu \neq \mu_o$	$t < -t_{\alpha/2}$ or $t > t_{\alpha/2}$	$2P(t > t_{\text{calculated}})$