Name	Sign Test	Wilcoxon Signed Rank Test	Wilcoxon Rank Sum Test	Mann-Whitney Test
Description				
Class	One Sample Location		Two Sample Location	
H_0	$H_0 : \theta = \theta_0$	$H_0 : \theta = 0$	$H_0 : \Delta = 0$	
H_1				
Test Statistic	$B = \sum_{i=1}^{n} \psi_i$	$T^+ = \sum_{i=1}^{n} R_i \psi_i$	$W = \sum_{j=1}^{n} S_j$	$U = \sum_{i=1}^{m} \sum_{j=1}^{n} \phi\left(X_i, Y_j\right)$
E_0	$E_0(B) = \frac{n}{2}$	$E_0\left(T^+\right) = \frac{n(n+1)}{4}$	$E_0(W) = \frac{n(N+1)}{2}$	$E_0(U) = \frac{mn}{2}$
Var_0	$\mathrm{Var}_0(B) = \frac{n}{4}$	$\mathrm{Var}_0\left(T^+\right) = \frac{n(n+1)(2n+1)}{24}$	$\mathrm{Var}_0(W) = \frac{nm(N+1)}{12}$	$\mathrm{Var}_0(U) = \frac{mn(m+n+1)}{12}$
LSA	$B^* = \frac{B-\frac{n}{2}}{\sqrt{\frac{n}{4}}}$	$T^* = \frac{T^+-E\left(T^+\right)}{\sqrt{\mathrm{Var}(T^*)}} \sim N(0,1)$	$W^* = \frac{W-E_0(W)}{\sqrt{\mathrm{Var}_0(W)}} \sim N(0,1)$	
Test Statistic Tie				$\phi^*\left(X_i, Y_j\right) = \begin{cases} 1 & \text{if } X_i < Y_j \\ \frac{1}{2} & \text{if } X_i = Y_j \\ 0 & \text{otherwise} \end{cases}$
E_0 Tie			$E_0(W) = \frac{n(N+1)}{2}$	
Var_0 Tie		$\frac{n(n+1)(2n+1)}{24} - \frac{1}{48} \sum_{i=1}^{g} t_j \left(t_j - 1\right)\left(t_j + 1\right)$	$\frac{nm(N+1)}{12} - \frac{mn}{12N(N-1)} \sum_{j=1}^{g} \left(t_j - 1\right) t_j \left(t_j + 1\right)$	
Other				$U = W - \frac{n(n+1)}{2}$

Name	Ansari-Bradley	Siegel Tukey	Lepage	Kolmogorov-Smirnov
Description				
Class				
H_0	$H_0 : \gamma^2 = 1$			
H_1				
Test Statistic	$C = \sum_{j=1}^{n} R_j$			
E_0	$E_0(C) = \frac{n(N+2)}{4}$ $E_0(C) = \frac{n(N+1)^2}{4N}$			
Var_0	even $V_{ar_0}(C) = \dfrac{mn(N+2)(N-2)}{48(N-1)}$ odd $V_{ar_0}(C) = \dfrac{mn(N+1)\left(3+N^2\right)}{48N^2}$			
LSA	$C^* = \frac{C - E_0(C)}{\sqrt{\mathrm{Var}_0(C)}} \sim N(0,1)$			
Test Statistic Tie				
E_0 Tie	Even $E_0(C) = \dfrac{N+2}{4}$ Odd $E_0(C) = \dfrac{n(N+1)^2}{4N}$			
Var_0 Tie	Even : $\frac{mn\left[16\sum_{j=1}^{g} t_j r_j^2 - N(N+2)^2\right]}{16N(N-1)}$ Odd:m n$\left[16N\sum_{j=1}^{g} t_j r_j^2 - (N+1)^4\right]\frac{}{16N^2(N-1)}$			
Other				