Minimization			
TSP	symmetric	asymmetric	
without triangle inequality	TSP -	ATSP -	
with triangle inequality	Δ -TSP $rac{3}{2}$ [11]	Δ -ATSP $rac{4}{3}\log_3 n \ [12]$	
weights $\{1,2\}$	(1,2)-TSP ⁸ / ₇ [2]	(1,2)-ATSP $\frac{5}{4}$ [4]	
sharpened triangle inequality	$\Delta_{\beta} \text{-TSP, } \beta < 1$ $\min\{1 + \frac{2\beta - 1}{3\beta^2 - 2\beta + 1}, \frac{2}{3} + \frac{\beta}{3(1-\beta)}\} [7]$	$\frac{\Delta_{\beta}-\text{ATSP},\beta<1}{\min\{\frac{1}{1-\frac{1}{2}(\beta+\beta^{3})},\frac{\beta}{1-\beta}\}} [3,8]$	
relaxed triangle inequality	Δ_{eta} -TSP , $eta > 1$ $min\{4eta, rac{3}{2}eta^2\}$ [6, 1]	Δ_{eta} – Atsp , $eta > 1$ –	

Maximization			
MaxTSP	symmetric	asymmetric	
without triangle inequality	$\frac{\text{MaxTSP}}{\frac{61}{81} - o(1)} [10]$	$\frac{\text{MaxATSP}}{\frac{2}{3}} [12]$	
with triangle inequality	Δ -MaxTSP $rac{7}{8} - o(1)$ [9]	Δ -MaxATSP $rac{31}{40}$ [5]	
weights $\{0,1\}$	(0,1)-MaxTSP $\frac{3}{4}$ [4]	(0,1)-MaxATSP ³ / ₄ [4]	
sharpened triangle inequality	$\frac{\Delta_{\beta}-\text{MaxTSP},\beta<1}{\frac{7}{8}+\frac{(1-\beta)^2}{8\beta^2}} \ [13]$	Δ_{eta} -MaxATSP, $eta < 1$ -	
relaxed triangle inequality	Δ_{eta} -MaxTSP, $eta>1$ -	Δ_{eta} -MaxATSP , $eta>1$	

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