FIND-VERTEX-COVER : given undirected G, output smallest vertex cover

 a 2-approximation algorithm

APPROX-FIND-VERTEX-COVER(G)

INVARIANT : a) $|C|$ $|A|$

  b) edges in A have

Basis : a)   b)

Maintenance: a)

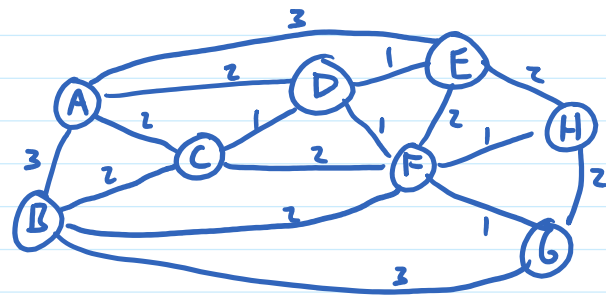 b)

Termination:

FIND-TSP-Δ : Given weighted undirected G that satisfies triangle inequality, find lowest weight tour.

APPROX-FIND-TSP-Δ

General TSP is not 2-approximable

<u>HC (G)</u>
1) Build complete G' with same vertices as G

Set $\quad w(u,v) = \begin{cases} 1 & \text{if } (u,v) \text{ in } G \\ 2 & \text{otherwise} \end{cases}$

2)

3)

if G has HC then G' has tour of cost

if G has no HC then optimal tour in G' has cost

distinct

$\underline{\text{SELECT } (S, k)}$

Let X = total number of steps

X_i = total number of steps in phase i

$X =$

$E[X] =$