

Shortest path from $1 \rightarrow 8$

1: ~~$2=3$~~ , $5=1$

5: ~~$2=3$~~ , $7=4$, ~~$6=3$~~

2: ~~$4=5$~~ , ~~$3=6$~~

6: ~~$7=5$~~

7: ~~$2=9$~~ , $8=5$

$1 \rightarrow 5 \Rightarrow 7 \Rightarrow 8 = 5$

Prim's :

1: ~~2=3~~, 5=1

5: 2=2, 6=2, ~~2=3~~

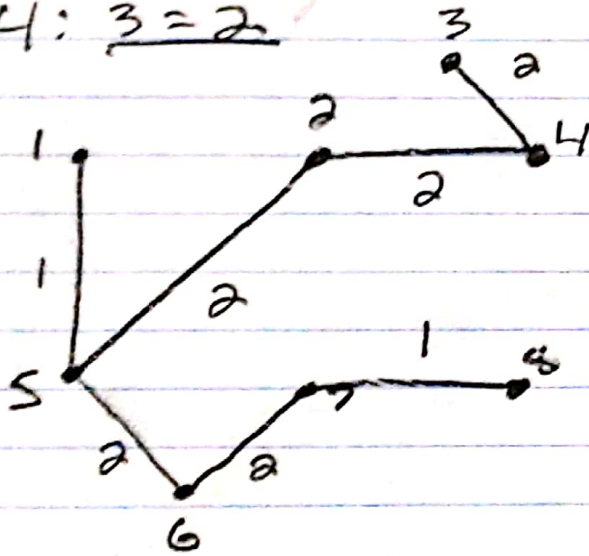
2: 3=3, 4=2, ~~2=5~~, ~~4=4~~

6: 7=2

7: 4=1

8: 4=2

4: 3=2



$$\begin{aligned} &1 + 2 + 2 + 1 \\ &+ 2 + 2 + 2 = 12 \end{aligned}$$