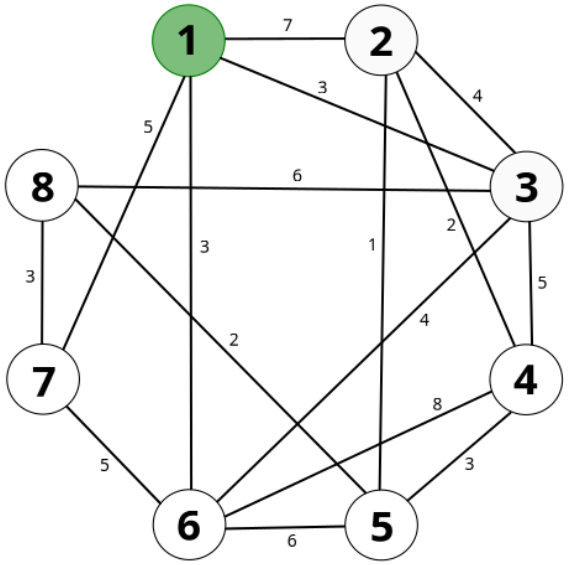
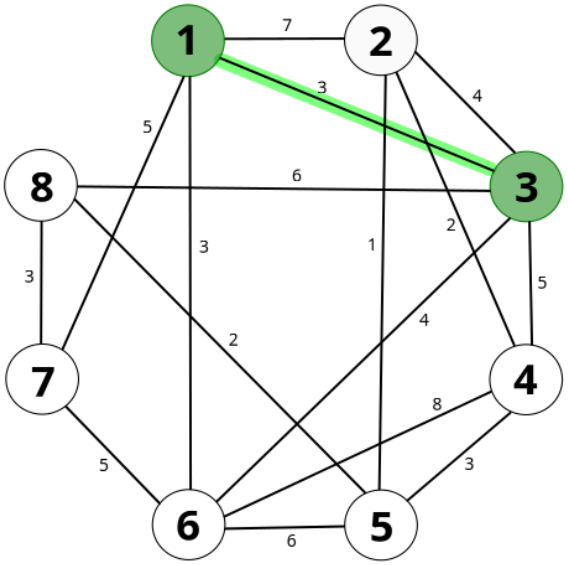
1. Ejecutar paso a paso, graficando las soluciones parciales, el algoritmo de Prim que computa el *árbol generador mínimo* sobre los grafos con nodos $\{1, 2, \ldots, 8\}$ y costos dados por una función w:

   (a)

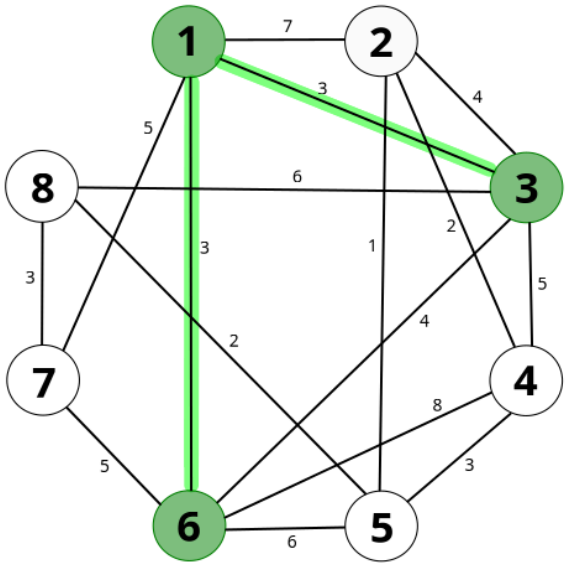
$$w((1,2)) = 7 \quad w((2,3)) = 4 \quad w((3,6)) = 4 \quad w((5,6)) = 6$$
$$w((1,6)) = 3 \quad w((2,4)) = 2 \quad w((3,8)) = 6 \quad w((6,7)) = 5$$
$$w((1,7)) = 5 \quad w((2,5)) = 1 \quad w((4,6)) = 8 \quad w((8,5)) = 2$$
$$w((1,3)) = 3 \quad w((3,4)) = 5 \quad w((5,4)) = 3 \quad w((8,7)) = 3$$



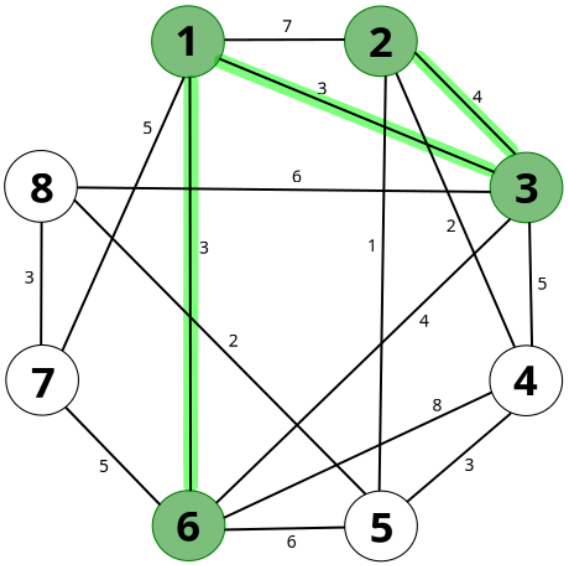
C = {2,3,4,5,6,7,8}
T = {}



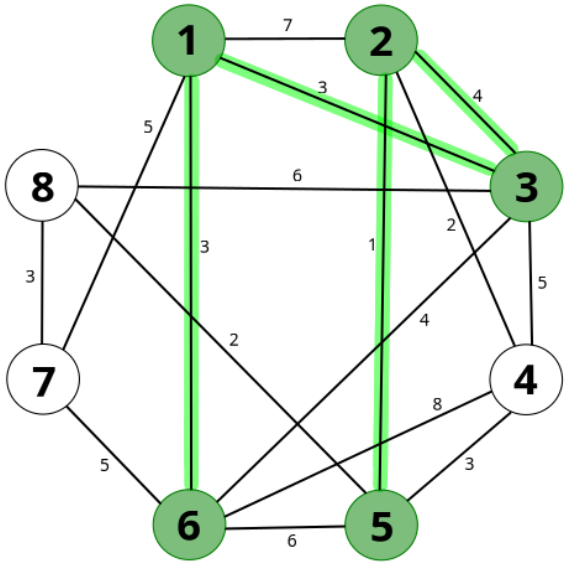
C = {2,4,5,6,7,8}
T = {(1,3)}



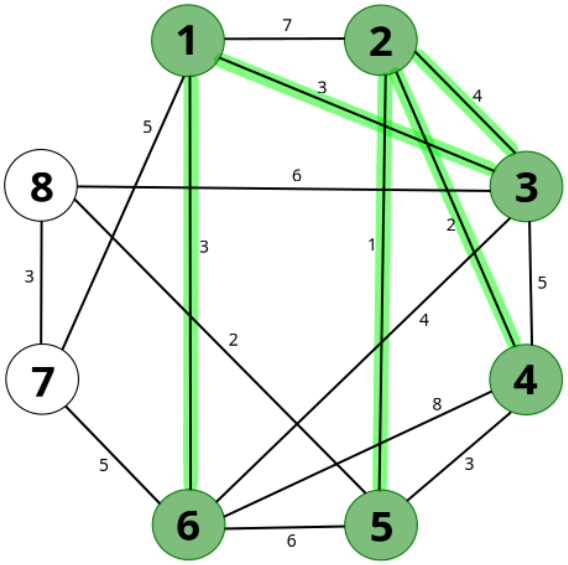
C = {2,4,5,7,8}
T = {(1,3),(1,6)}



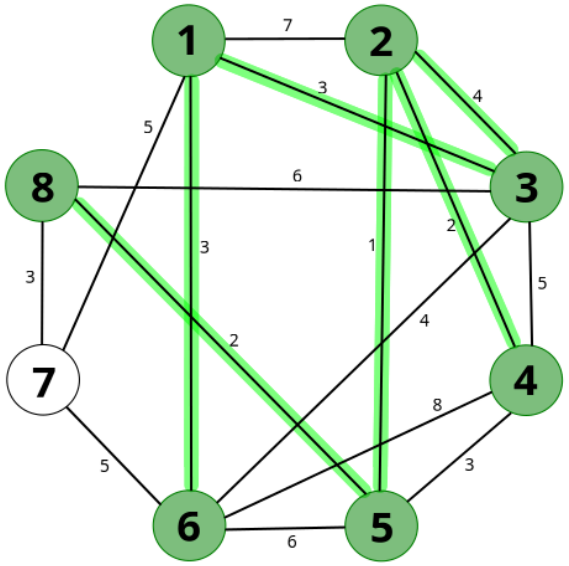
C = {4,5,7,8}
T = {(1,3),(1,6),(2,3)}



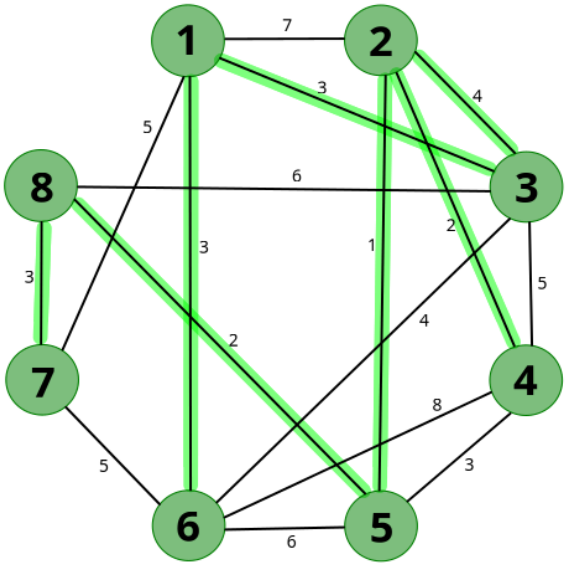
C = {4,7,8}
T = {(1,3),(1,6),(2,3),(2,5)}



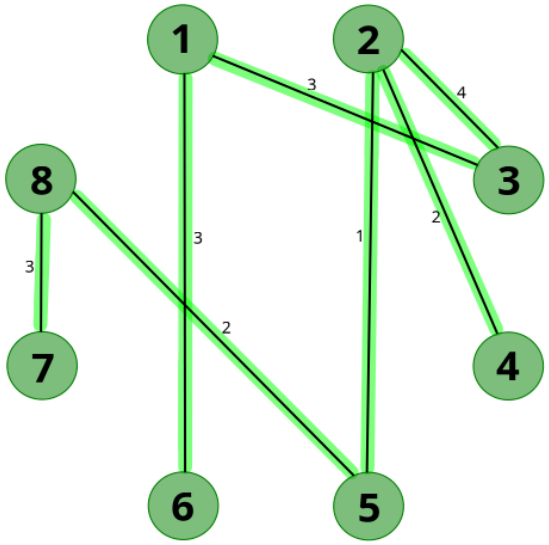
C = {7,8}
T = {(1,3),(1,6),(2,3),(2,5),(2,4)}



C = {7}
T = {(1,3),(1,6),(2,3),(2,5),(2,4),(8,5)}



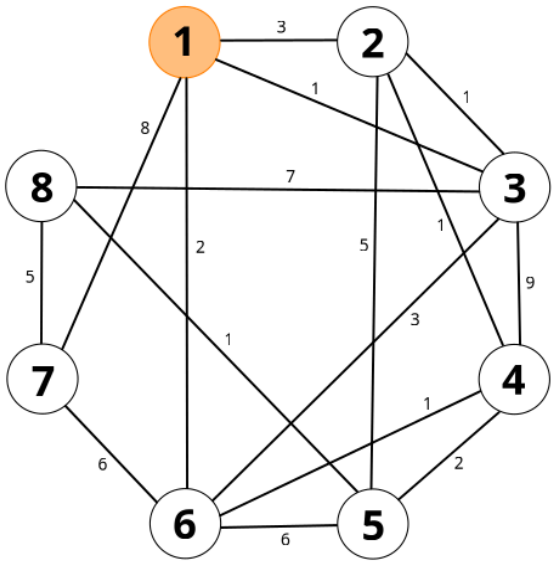
C = {}
T = {(1,3),(1,6),(2,3),(2,5),(2,4),(8,5),(8,7)}



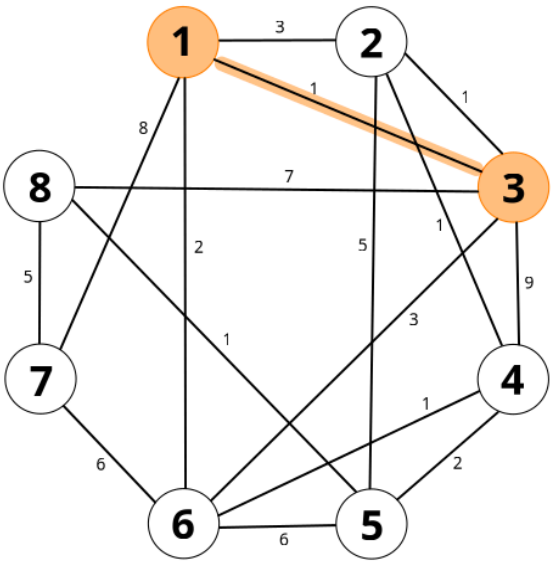
Peso = (1,3)+(1,6)+(2,3)+(2,5)+(2,4)+(8,5)+(8,7) = 3+3+4+1+2+2+3 = **18**

(b)

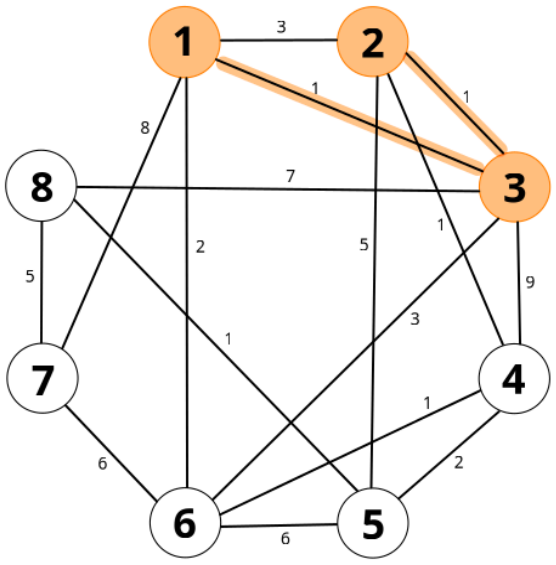
$$
\begin{array}{llll}
w((1,2)) = 3 & w((2,3)) = 1 & w((3,6)) = 3 & w((5,6)) = 6 \\
w((1,6)) = 2 & w((2,4)) = 1 & w((3,8)) = 7 & w((6,7)) = 6 \\
w((1,7)) = 8 & w((2,5)) = 5 & w((4,6)) = 1 & w((8,5)) = 1 \\
w((1,3)) = 1 & w((3,4)) = 9 & w((5,4)) = 2 & w((8,7)) = 5
\end{array}
$$



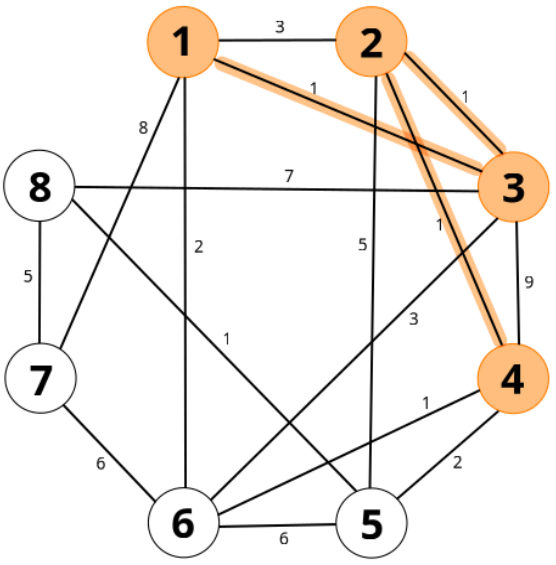
C = {2,3,4,5,6,7,8}
T = {}



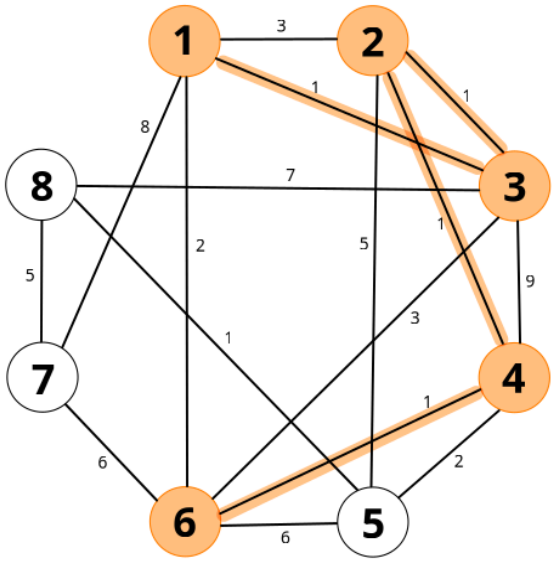
C = {2,4,5,6,7,8}
T = {(1,3)}



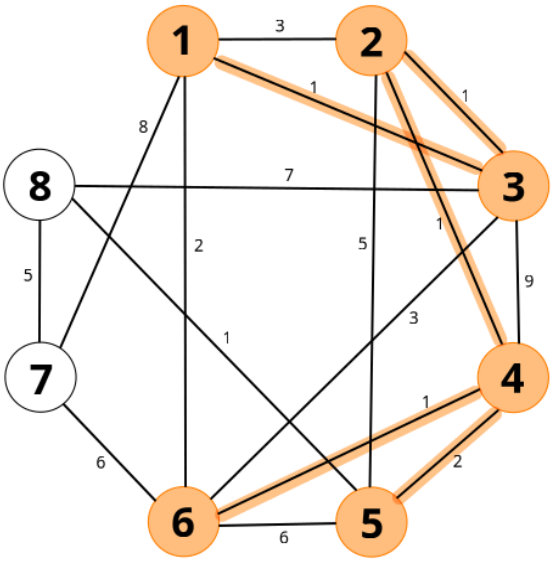
C = {4,5,6,7,8}
T = {(1,3),(2,3)}



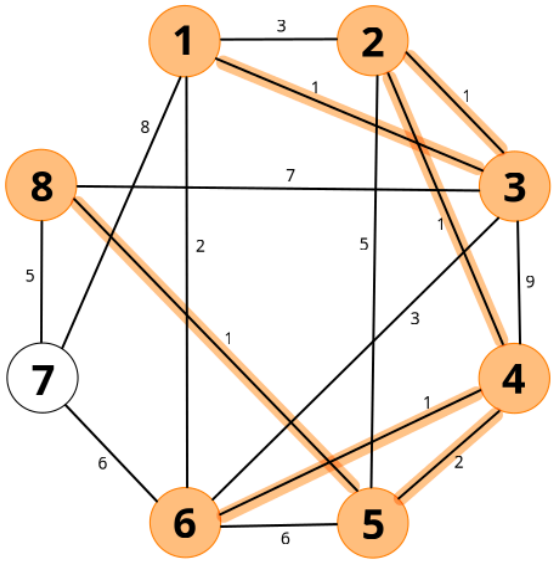
C = {5,6,7,8}
T = {(1,3),(2,3),(2,4)}



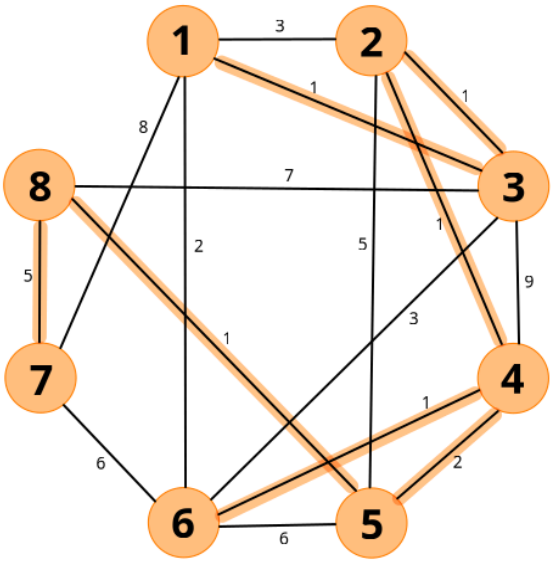
C = {5,7,8}
T = {(1,3),(2,3),(2,4),(4,6)}



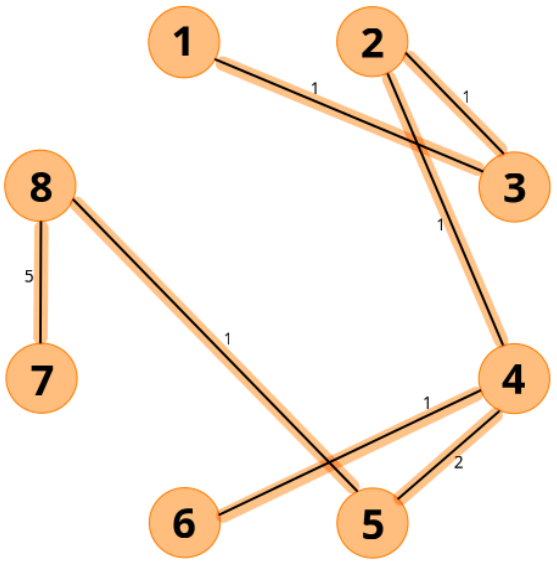
C = {7,8}
T = {(1,3),(2,3),(2,4),(4,6),(5,4)}



C = {7}
T = {(1,3),(2,3),(2,4),(4,6),(5,4),(8,5)}



C = {}
T = {(1,3),(2,3),(2,4),(4,6),(5,4),(8,5),(8,7)}



Peso = (1,3)+(2,3)+(2,4)+(4,6)+(5,4)+(8,5)+(8,7) = 1+1+1+1+2+1+5 = **12**