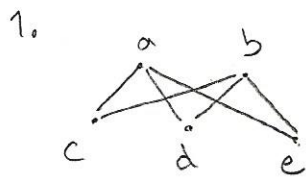


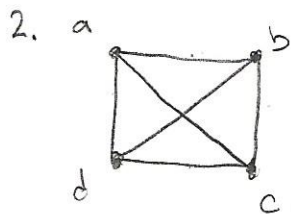
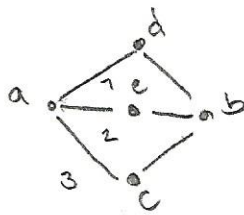
11. Verifica la fórmula de Euler para los que son grafos planares conexos en la figura 3.



$$e = 6$$

$$v = 5$$

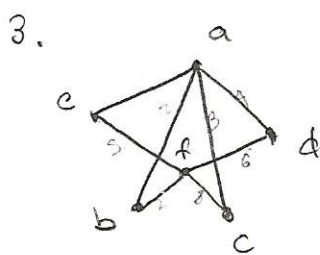
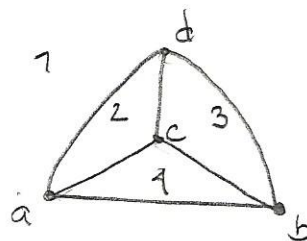
$$r = 6 - 5 + 2 = 3$$



$$e = 6$$

$$v = 4$$

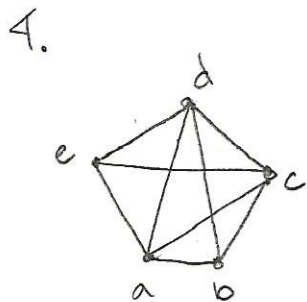
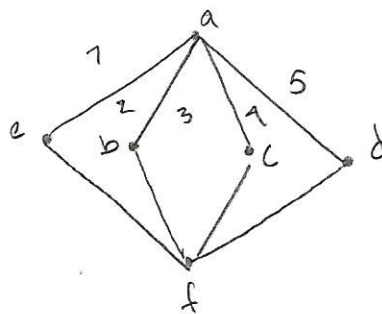
$$r = 6 - 4 + 2 = 4$$



$$e = 8$$

$$v = 6$$

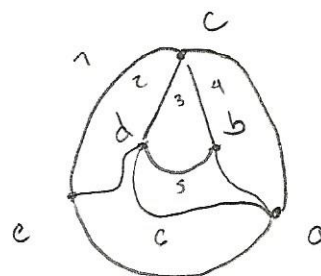
$$r = 8 - 6 + 2 = 4$$



$$e = 9$$

$$v = 5$$

$$r = 9 - 5 + 2 = 6$$



12. Un grafo planar conexo contiene 24 aristas, dividiendo el plano en 13 regiones.
¿Cuántos vértices tiene este grafo?

$$e = 24 \quad r = 13$$

$$r = e - v + 2 \rightarrow v = e - r + 2 = 24 - 13 + 2 = 13$$