

Planar graphs, UMN Math 4707, Spr. 2020

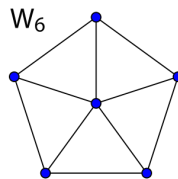
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1. Show that the planar graphs corresponding to the icosahedron and dodecahedron are dual:

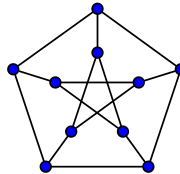


2. The *wheel graph* W_n on n vertices is obtained from the cycle graph C_{n-1} on $(n - 1)$ vertices by adding a new vertex adjacent to every other vertex; for instance W_6 looks like:



Show that W_n is always self-dual.

3. Recall that the Petersen graph is



Find a subgraph of the Petersen graph that's a subdivision of $K_{3,3}$. Conclude that the Petersen graph is not planar. Can you find a subgraph of the Petersen graph that's a subdivision of K_5 ?