PRINT your Name: Solution

1. A dodecahedron has 12 faces, each of which is a regular pentagon. How many edges does it have? How many vertices does it have? Write your answers in the spaces below.

   A dodecahedron has __30__ edges and __20__ vertices.

   Solution: There are 12 faces, each of which is a regular pentagon. Each face has 5 edges, but each edge is shared by exactly one other face. This means that there are $12 \times 5/2 = 30$ edges in all.

   To get the number of vertices, we use Euler's formula, filling in what we know, and then solving for V.

$$\begin{aligned} V - E + F &= 2 \\ V - 30 + 12 &= 2 \\ V - 18 &= 2 \\ V &= 20 \end{aligned}$$