History of Mathematical Ideas
Quiz 3

Name:_____

You have 15 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

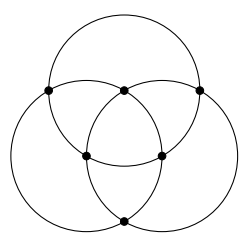
1. Define *regular polyhedron*.

A regular polyhedron is a 3-dimensional convex solid figure which is bounded by finitely many flat faces, whose faces are congruent regular polygons, and which has the property that the same number of faces meet at each vertex.

2. This problem concerns Euler's Formula for connected planar graphs.
   (i) State the formula.

$$v - e + r = 2$$

   (ii) Show that the formula holds for the following graph:



There are 6 vertices, 12 edges and 8 regions, so $v - e + r = 6 - 12 + 8 = 2$ indeed.