

Math 762 Homework Assignment, Due Thursday, April 5

1. Suppose that a $G(p)$ is an infinitesimally rigid bar framework in \mathbb{E}^d , such that the removal any edge causes the framework not to be infinitesimally rigid. We call such frameworks *minimally infinitesimally rigid*. Show that $e = nd - d(d+1)/2$ or $G(p)$ is a bar simplex.
2. Find all the bar graphs G with 6 or fewer vertices, up to isomorphism, such that for a generic configuration p in \mathbb{E}^2 , $G(p)$ is minimally infinitesimally rigid.
3. Let $G(p)$ be a Cauchy polygon in the plane with 6 vertices. This is a $c - s$ polygon with cables for edges and struts for the interior diagonals. For all possible projective images, describe the patterns for cables and struts, and indicate a configuration that achieves each pattern.