



- 4 Show that if  $m$  and  $n$  are even positive integers, the crossing number of  $K_{m,n}$  is less than or equal to  $\frac{mn(m-2)(n-2)}{16}$ . [Hint: Place  $m$  vertices along the  $x$ -axis so that they are equally spaced and symmetric about the origin and place  $n$  vertices along the  $y$ -axis so that they are equally spaced and symmetric about the origin. Now connect each of the  $m$  vertices on the  $x$ -axis]