Answer on Question 39832, Physics, Optics Question: THE IMAGE OF A SMALL ELECTRICAL BULB FIXED ON THE WALL OF A ROOM IS TO BE OBTAINED ON THE OPPOSITE WALL 4m AWAY BY MEANS OF A LARGE CONVEX LENS.THE MAX. POSSIBLE FOCAL LENGTH OF THE LENS REQUIRED FOR THIS PURPOSE WILL BE ?

Solution

For the convex lens, image will be at distance more then 2F if the object is between F and 2F and it will be between F and 2F if the object is at more then 2F. For both cases, maximum focal length can be F=1 m. Answer is 1m.