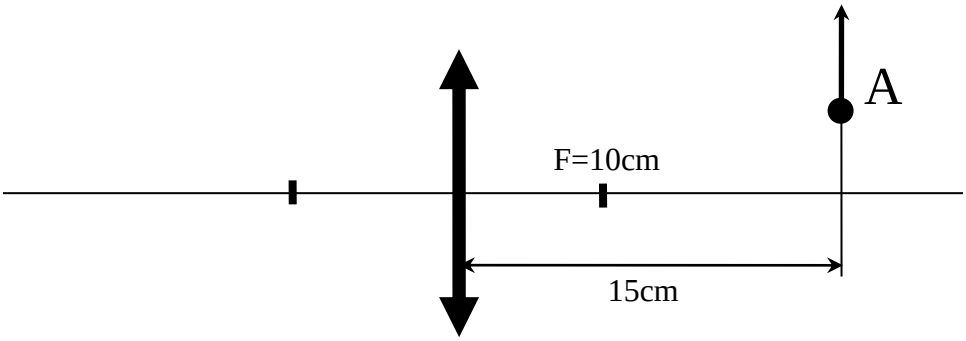
Homework 9.

1. Imagine that a small particle of dust stack to the objective of your photo camera (or there is a small scratch on the lens). Describe how it will affect the quality of the picture. Explain your answer.

2. The point A in the Figure moves up at the speed of 2cm/s (see figure). Focal distance of the lens is 10cm. Find a velocity of the image of the point A.



3. Distance between the object and the lens is *n* times smaller than the focal distance of the lens. Find the magnification. (Assume that only *n* is known).

4. Two lenses with the optical powers D_1=4dioptres (dpt) and D_2=5dpt are placed on the same optical axis and separated by the distance of 0.9m. Find the position of the image if the object is placed 0.5m before the first lens. (Just to remind: optical power is the inverse focal distance of a lens; 1 dioptre = 1/m).