

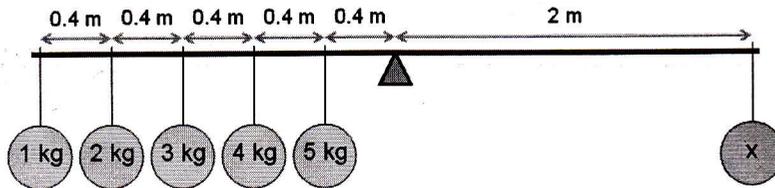
Georgia.

## Captain's contest for the Finals

1. Make a paper airplane from an A4 sheet that flies as far as possible. Only one public launch is allowed to determine the winning airplane and credit one point.

0

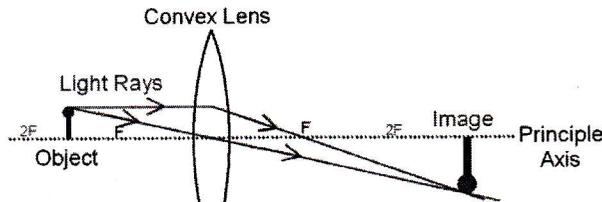
2. A seesaw is in equilibrium. It has five masses of 1, 2, 3, 4, and 5 kg attached to its left-hand side at the distances of 2 m, 1.6 m, 1.2 m, 0.8 m, and 0.4 m from the pivot, respectively. An unknown mass is attached to the right-hand side at a distance of 2 m. Find this mass.



7

1

3. A convex lens is used to form a sharp, inverted image of a burning candle. How would the image on the screen change if the top half of the lens is covered with an opaque black paint?



we can't see anything.

0

4. What is greater,  $\sqrt{3} - \sqrt{2}$  or  $\sqrt{7} - \sqrt{5}$ ?

$\sqrt{7} - \sqrt{5}$ .

1

5. Name the important physical value that Ancient Greek mathematician Eratosthenes of Cyrene first measured by comparing Sun elevation at noon in Alexandria and in Syene.

gravity constant

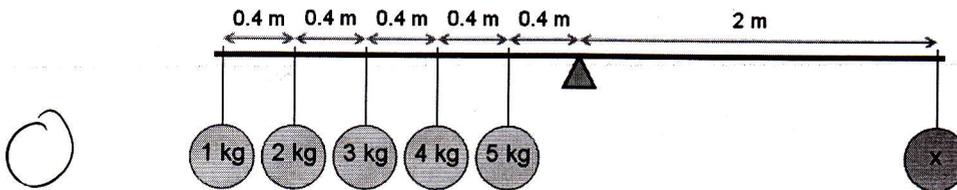
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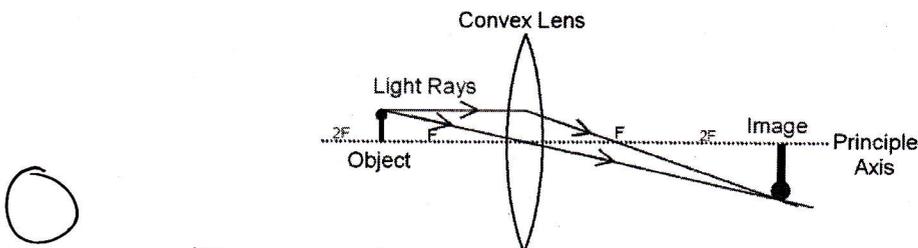
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5 kg

3. A convex lens is used to form a sharp, inverted image of a burning candle. How would the image on the screen change if the top half of the lens is covered with an opaque black paint?



Foggy image,

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$\sqrt{7} - \sqrt{5}$

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0

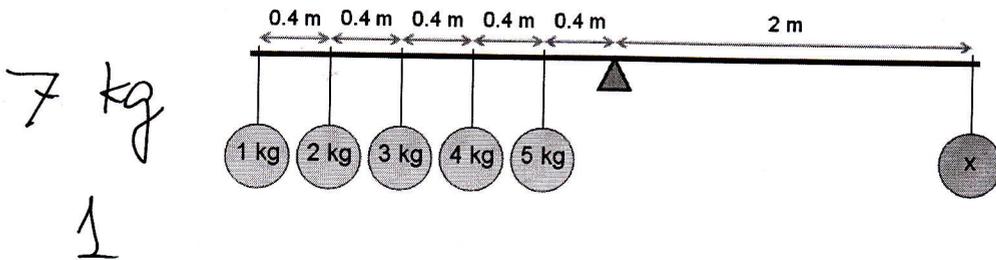
Wang Yuhao China

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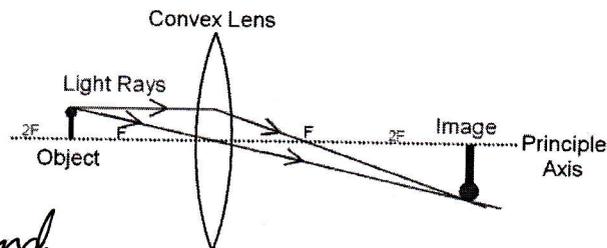
3. A convex lens is used to form a sharp, inverted image of a burning candle. How would the image on the screen change if the top half of the lens is covered with an opaque black paint?

The shape of  
the image

remains

unchanged and

the image gets darker.



4. What is greater,  $\sqrt{3} - \sqrt{2}$  or  $\sqrt{7} - \sqrt{5}$ ?

$$\sqrt{7} - \sqrt{5} > \sqrt{3} - \sqrt{2} \quad \downarrow$$

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