Question#19671

An object is placed 4 cm in front of a concave lens of focal length 3 cm. Using the lens equation, find where the image will form and state whether it is a real or virtual image.

Solution:

Let:

$f = 3\ cm$

$S_1 = 4\ cm$

$S_2-?$

The lens equation is:

$$\frac{1}{S_1} + \frac{1}{S_2} = \frac{1}{f}$$

Were the distances from the object to the lens and from the lens to the image are S_1 and S_2 respectively.

$$S_2 = \frac{fS_1}{S_1-f}$$

$$S_2 = \frac{4*3}{4-3} = 12\ cm$$

Answer: 12 cm,

such as $S_1 > f$ the image will be real.