Question   A concave mirror has a radius of 20cm. An object is placed
30cm in front of the mirror. Determine where the image will appear
-4.5cm
-5.5cm
-6.5cm
-7.5cm

Solution   Focus distance is $f = R/2 = -10$ cm. Equation of mirror:

$$\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$$

where d_o and d_i is object and image distance respectively. From this we find

$$d_i = \frac{1}{1/f - 1/d_o} = \frac{1}{-1/10 - 1/30} \approx -7.5\,cm$$