A flea walking along a ruler moves from the $x_i = 45$ cm mark to the $x_f = 27$ cm mark. What is the displacement? (Define increasing numbers to be the positive direction and decreasing numbers to be the negative direction.).

Solution:

The displacement

$$s_x = x_f - x_i$$

$$= 27 \text{ cm} - 45 \text{ cm} = -18 \text{ cm}$$

Answer: $s_x = -18$ cm