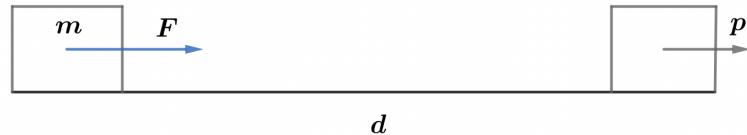


2022B F=ma Exam: Problem 6

Kevin S. Huang



The work done on the block when it's pushed to the end is

$$W = Fd$$

By the work-energy theorem,

$$Fd = \frac{p^2}{2m}$$

$$p = \sqrt{2Fd/m}$$

For the same force and distance, $p \propto \sqrt{m}$ so for $m' = 2m$,

$$p' = \sqrt{2}p$$

and the answer is D.