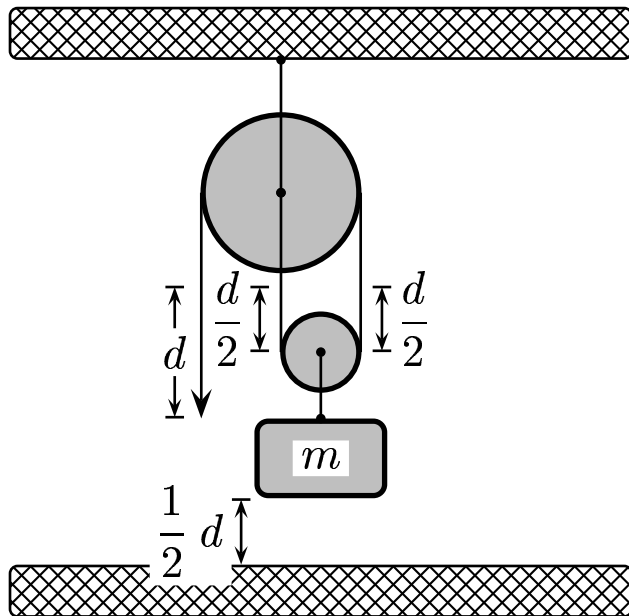


Consider the mass-pulley system shown.

*Note:* The figure *may not be drawn to scale.*

Determine the distance covered by the force  $F$  as it lifts the mass by a height  $\Delta x$ .

- A)  $d = \Delta x$ .
- B)  $d = 2 \Delta x$ .
- C)  $d = 3 \Delta x$ .
- D)  $d = 4 \Delta x$ .



*Note:* The figure *is drawn to scale.*

$\frac{d}{2}$  is the distance from the floor to the bottom of the block.

As the mass is being lifted by a height  $\Delta x$ , the length of each of the two strings supporting the moving pulley will be reduced by  $\Delta x$  so  $d = 2 \Delta x$ .

Answer **B**.