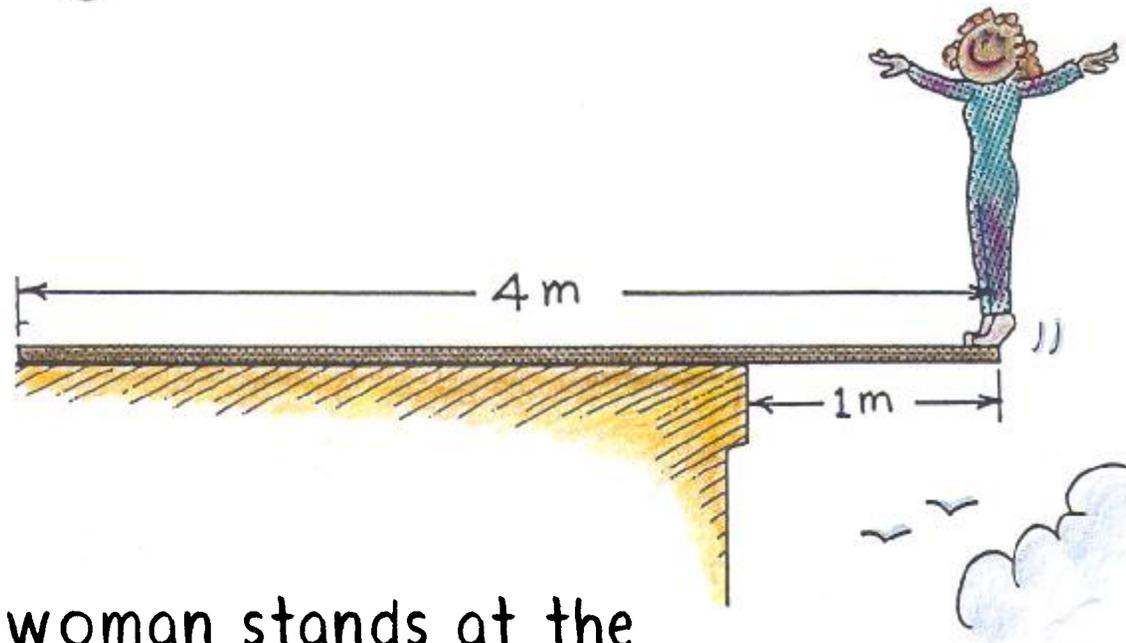


NEXT-TIME QUESTION

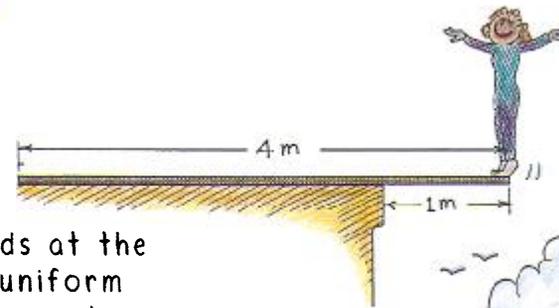
CONCEPTUAL Physics



The 40-kg woman stands at the end of a 4-meter-long uniform plank. If the maximum overhang for balance is 1 meter, estimate the mass of the plank.



NEXT-TIME QUESTION



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Answer:

The mass of the plank is about 40 kg. The plank tends to rotate like a seesaw about a pivot point at the edge of the building. Her weight multiplied by 1 meter produces a torque that tends to rotate the system clockwise. The counterbalancing torque is produced by the weight of the plank multiplied by the distance from the pivot point to the plank's center of gravity. Note that this distance is also 1 meter. So both the woman and the plank weigh the same. Their masses are equal.

