

# NEXT-TIME QUESTION



The strong man can withstand the tension forces exerted by the pair of ropes—one tied to a tree and the other to a horse. No problem. Compare the tension he experiences in two other situations shown to the right—horse and horse, and two horses and a tree.



Hewitt  
Draw it!

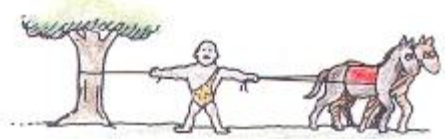


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CONCEPTUAL PHYSICS



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Answer:

The tension is the same whether two horses pull in opposite directions, or one horse pulls to the right and the tree pulls to the left. Does the tree really pull? If it didn't, wouldn't the strong man be moved by the horse? When two horses pull in the same direction, however, tension doubles. In this case, the tree also pulls twice as hard. If it didn't, would the strong man remain stationary?



If the tree didn't pull on the rope, the rope couldn't pull on the tree. That's Newton's third law!

