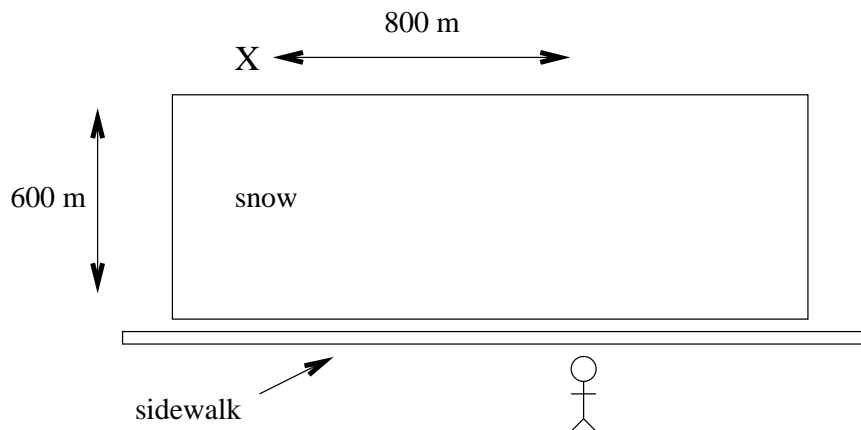


Chapter 4:4: Optimization and Modeling

Calculus I

College of the Atlantic. Fall 2021



You need to get to point X in the figure. (You are the stick figure.) You are currently on a clear sidewalk on which you can walk 4 m/s. But you'll have to cross the snowy area to get to X . You can walk across the snow at 2 m/s. What path should you take to get to X as quickly as possible?

You recently acquired three alpacas and need to fence in a pasture so they don't wander off. Fortunately, you have a tall stone wall along one side of your property. So you'll need to build three walls, not four, to produce a nice rectangular field. You can afford 100 meters of fencing material. What dimensions should your field be so as to maximize the area available to the alpacas?