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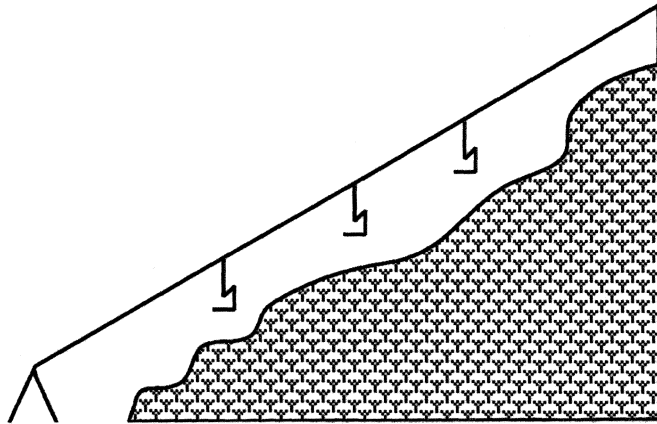
\*FM = Foundations of Mathematics

†IC = Introductory Calculus

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### 3. Chair Lift

A chair lift is gradually winched up a mountain side by a series of discrete advances.



The tension produced in the cable is represented by:

$$\text{Tension} = 1200(-0.25t^2 + 4.2t - 0.7)$$

where  $t$  is the number seconds after each discrete advancement begins.

1. Graph this function, clearly labelling all features.
2. Within what domain of  $t$  is it valid?
  
3. For how long does one advancement last?
  
4. What is the greatest tension produced during each advancement?
  
5. If each advancement covers 50 m and the journey up the mountain side lasts 1 hour, what distance does the chair lift cover in a return trip?