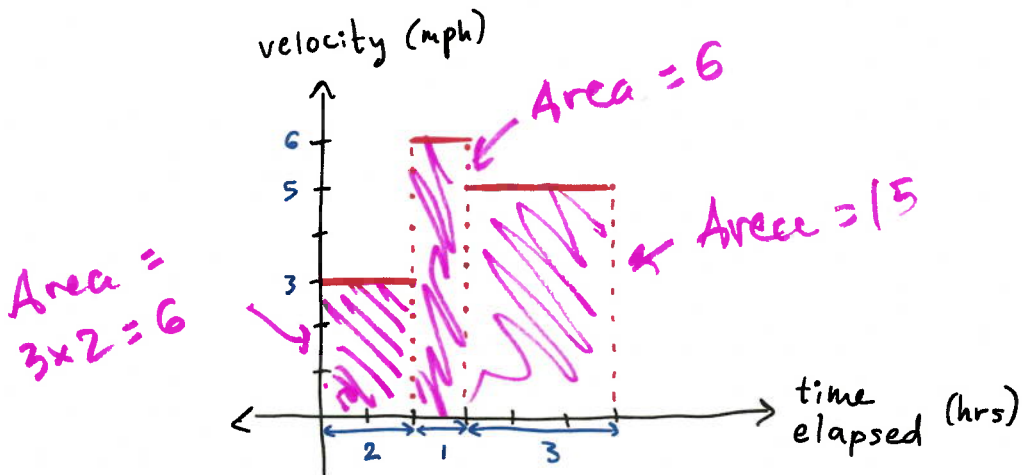


Suppose I am going down a long straight road, and I want a lot of exercise, so I:

- walk for **2 hours**, at **3 mph**, then  $2 \times 3 = 6 \text{ mi}$
- run for **1 hour**, at **6 mph**, then  $1 \times 6 = 6 \text{ mi}$
- jog for **3 hours**, at **5 mph**.  $3 \times 5 = 15 \text{ mi}$

What is my **total distance** traveled?

$27 \text{ mi}$



In this graph, is there a way to represent my total distance traveled geometrically?

Total dist. = area under graph of velocity

Fact still works even if velocity changes continuously over time.



Problem find the area under a curve