

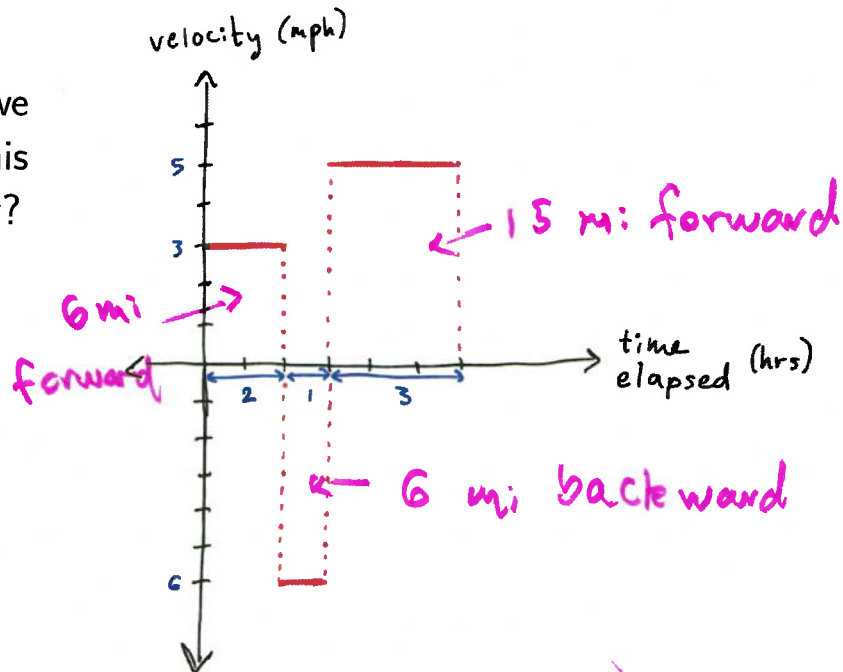
Suppose I am going down a long straight road, and I:



- walk for **2 hours**, at **3 mph**, then $2 \times 3 = 6 \text{ mi}$
- turn around and run in the **other direction** for **1 hour**, at **6 mph**, then **6 mi**
- turn around again and jog in the **original direction** for **3 hours**, at **5 mph**. **15 mi**

At the end, **how much progress** have I made down the road?
(in the original direction) **Answer = $6 - 6 + 15 = 15 \text{ mi}$**

How can we represent this geometrically?



$$\text{Progress} = (\text{area above } x\text{-axis}) - (\text{area below } x\text{-axis})$$