



Or, rewritten:

$$vt = d$$

$$\text{miles/hour} \times 3 \text{ hours} = 3 \text{ miles}$$

Notice how the labels cancel to produce a new label that fits the result.

Here is a speed-time graph of a boat starting from one place and sailing to another:

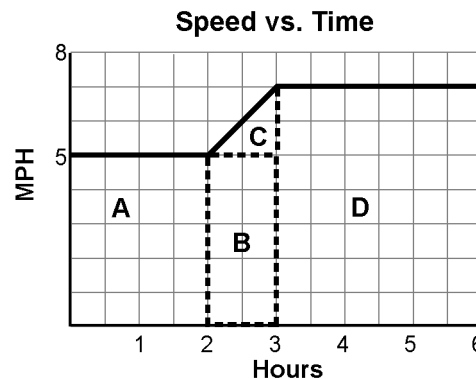
The graph shows that the sailboat accelerated between the second and third hour. We can find the total distance by finding the area between the line and the baseline. The easiest way to do that is to break the area into sections that are easy to solve and then add them together.

$$A + B + C + D = \text{distance}$$

- Use the formula for the area of a rectangle, $A = L \times W$, to find areas A, B, and D.
- Use the formula for finding the area of a triangle, $A = l \times w/2$, to find area C.

$$A + B + C + D = \text{distance}$$

$$10 \text{ miles} + 5 \text{ miles} + 1 \text{ mile} + 21 \text{ miles} = 37 \text{ miles}$$

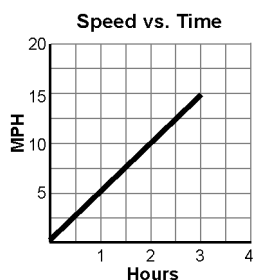


PRACTICE

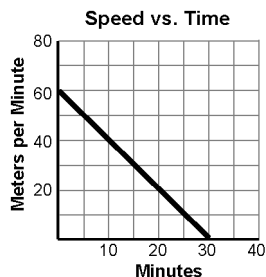


Calculate acceleration from each of these graphs.

1. Graph 1:



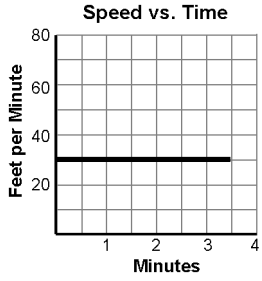
2. Graph 2:



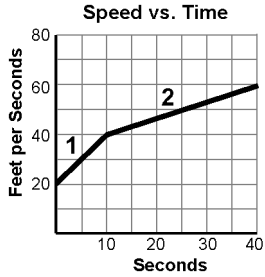


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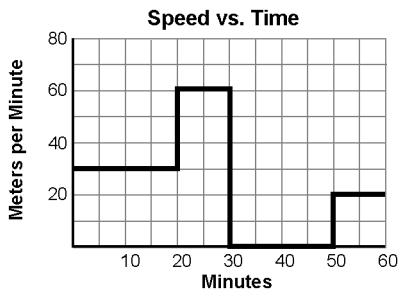
3. Graph 3:



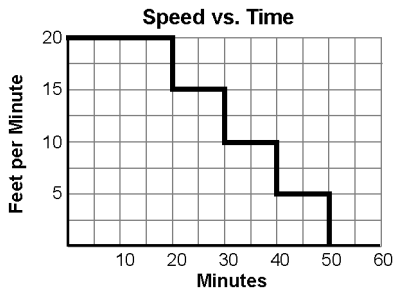
4. Find acceleration for segment 1 and segment 2 in this graph:



5. Calculate total distance for this graph:



6. Calculate total distance for this graph:



7. Calculate total distance for this graph:

