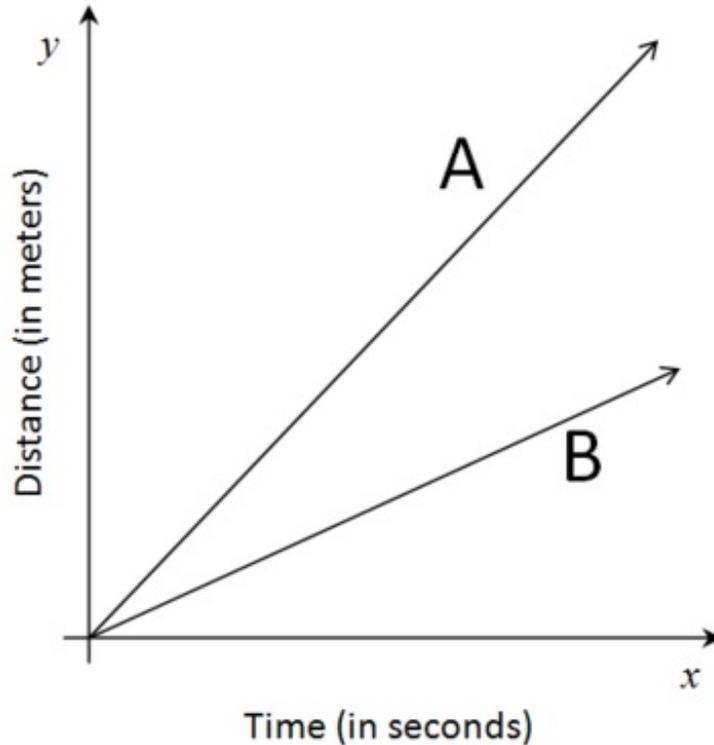


# 8.EE Comparing Speeds in Graphs and Equations

Alignments to Content Standards: 8.EE.B.5

## Task

The graphs below show the distance two cars have traveled along the freeway over a period of several seconds. Car A is traveling 30 meters per second.



Which equation from those shown below is the best choice for describing the distance

traveled by car B after  $x$  seconds? Explain.

a.  $y = 85x$

b.  $y = 60x$

c.  $y = 30x$

d.  $y = 15x$

## IM Commentary

This task provides the opportunity for students to reason about graphs, slopes, and rates without having a scale on the axes or an equation to represent the graphs. Students who prefer to work with specific numbers can write in scales on the axes to help them get started.

## Solutions

[Edit this solution](#)

### **Solution: Slope is speed**

The graph that represents the distance of car A after  $x$  seconds is steeper, so it must have a bigger slope. The slope can be interpreted as the unit rate; in this case it tells you the number of meters the car travels per second. Since the slope for car A is larger than the slope for car B, A is traveling faster. The only equation with a smaller slope (and thus a slower speed) is equation d. Thus,  $y = 15x$  is the best choice for the equation for car B of those that are given.

[Edit this solution](#)

### **Solution: Add a scale to the graph, and plot the different possible answers**

Since we know that car A travels 30 meters per second, we can place the point (1,30) anywhere on the given graph. We can use this point to lay out a rough scale for the rest of the graph. Then we can plot points from each of the four equations given as possible answers, and see that answer d comes closest to the line for car B.



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