

March 25, 2011

5 days and counting!

Class starts in

Today's Agenda ~
MCA corrections
Homework corrections
Mark notebooks
8.2.3 / 8.2.4



Please be ready.

Homework: Turn in notebooks

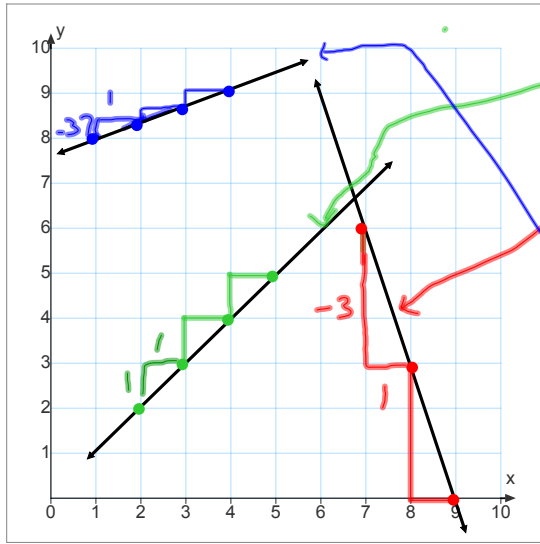
13



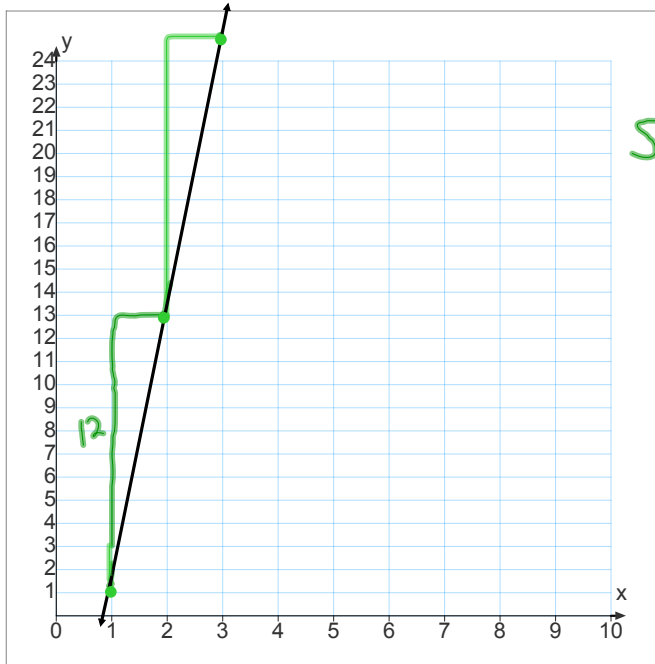
10

$$\text{tags} \frac{66}{?} = \frac{17}{100}$$

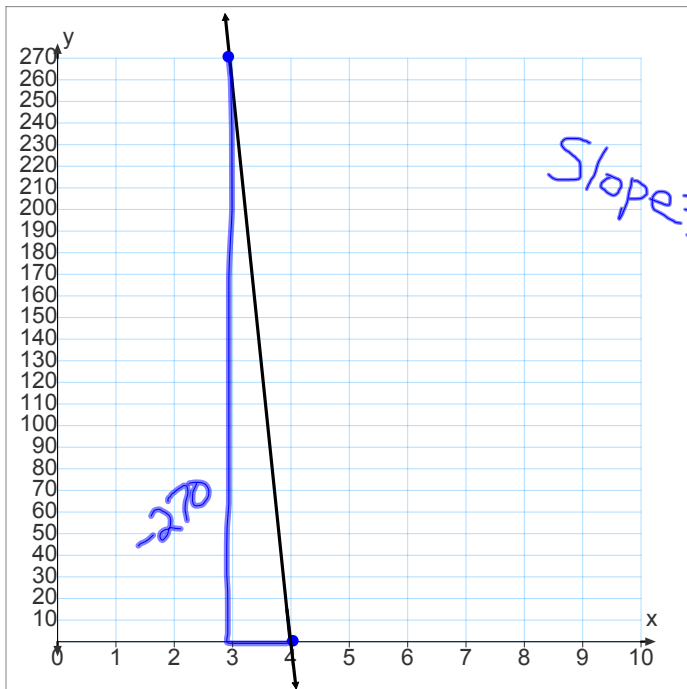
? = 389



21) Slope = $\frac{1}{1}$
 23) Slope = $\frac{-3}{1}$
 24) Slope = $\frac{37}{1}$

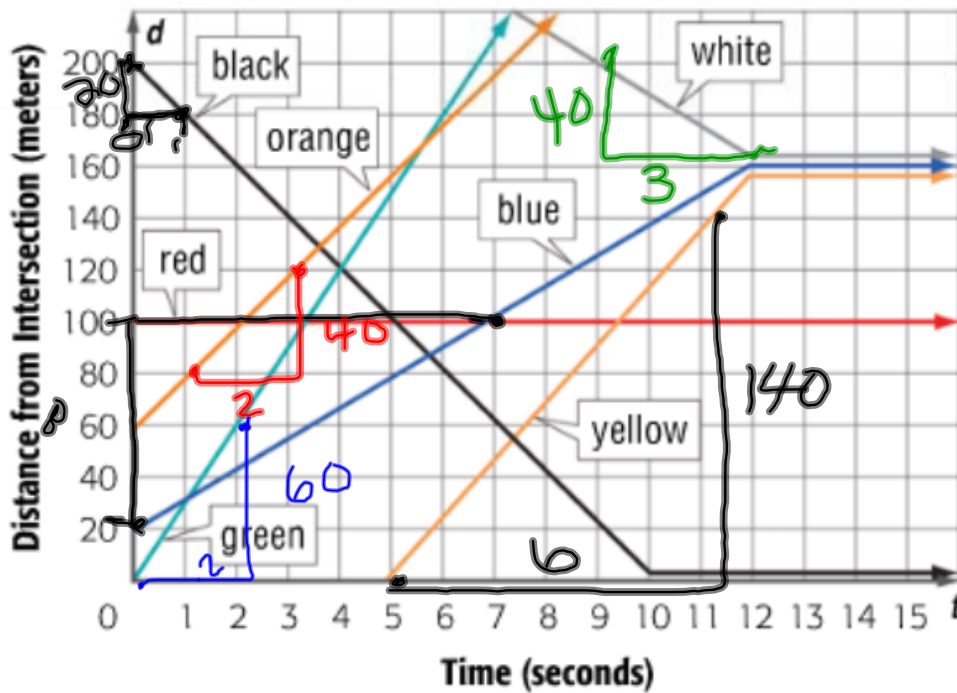


22) Slope = $\frac{12}{1}$



Slope = $\frac{-270}{1}$

Cars on the Highway



1. In what direction is each car moving in relation to the intersection?

black *toward, stopped* white *towards then stops*
 orange *away* red *proceed*
 blue *away, stopped* yellow *away then stops*
 green *away*

2. Compare the cars' speeds.

black $\frac{-20}{10} = -20 \text{ mps}$ white $\frac{-40}{3} = 13.\bar{3}$
 orange $\frac{40}{2} = 20 \text{ mps}$ red 0 mps
 blue $\frac{80}{7} = 11.42 \text{ mps}$ yellow $\frac{140}{6} = 23.\bar{3}$
 green $\frac{60}{2} = 30 \text{ mps}$

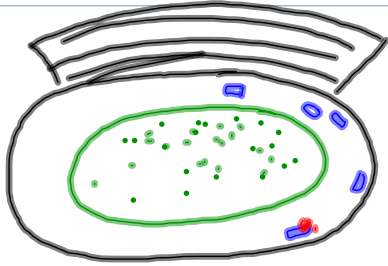
3. Do any of the cars stop during their trips? If so, which cars?

People often use one of two words when they describe how fast something is moving: *speed* or *velocity*. In fact, these two words mean different things mathematically.

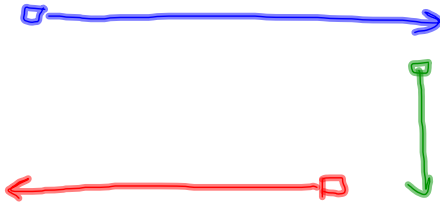
Speed is always positive. It shows how fast an object is moving, but it does not reveal anything about the object's direction.

Velocity can be either positive or negative, as can slope. The sign of the velocity shows whether an object is moving from or toward a designated point. The absolute value of the velocity is the same as the speed. While the black car is moving, for example, it has a positive speed of 20 meters per second. However, its distance to the intersection is decreasing, so its velocity is -20 meters per second.

Speed

<p>Definition A number and a unit describing how fast an object is moving, but does not tell anything about the object's direction of travel.</p>	<p>Picture</p> 
<p>Reminds me of</p>	<p>Sentence</p>

Velocity

<p>Definition A way of describing how fast an object is moving using a number, unit, and <u>direction</u>.</p>	<p>Picture</p> 
<p>Reminds me of</p>	<p>Sentence</p>

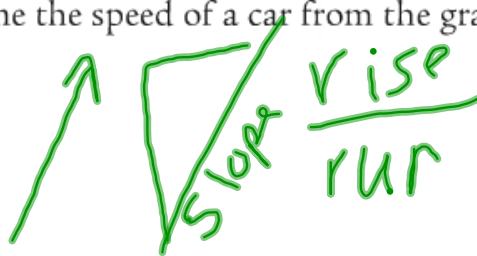
4. Prepare a group report for one of the cars. Imagine you are in that car, and give the highlights of your trip for these 15 seconds. Include such observations as where and when you started the trip and what you saw going on around you in front of the car, to the sides, and through the rearview mirror.

Share & Summarize

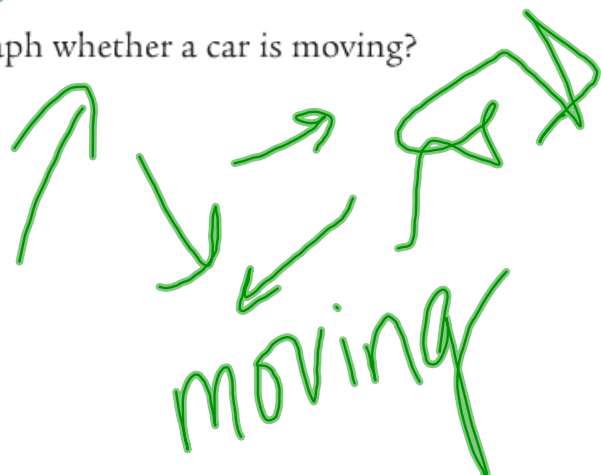
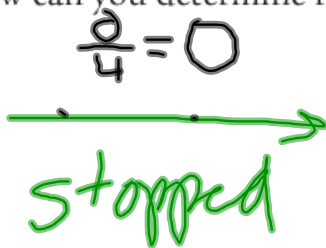
1. How can you determine from the graph whether a car is moving toward or away from the intersection?



2. How can you determine the speed of a car from the graph?



3. How can you determine from the graph whether a car is moving?



Investigation 4

Vocabulary

y-intercept

Change the Starting Point

You will now explore a situation in which runners start a race at different points. You will see how rules and graphs show these differences.

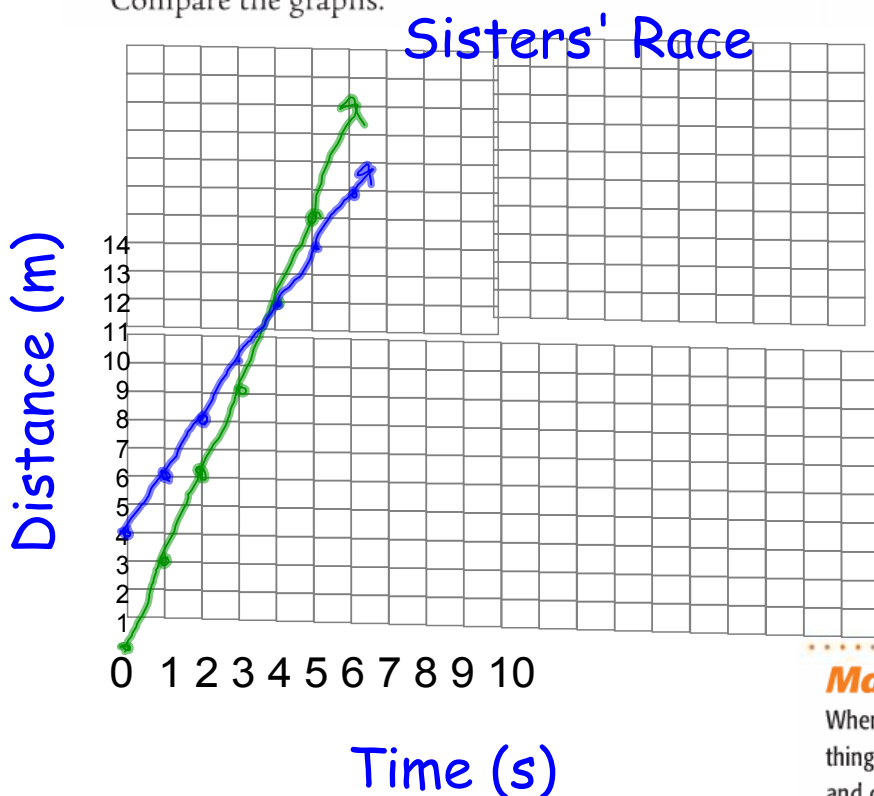
Develop & Understand: A

Alita ran a race with her younger sister, Olivia. Alita let Olivia start 4 meters ahead of the starting line. Alita ran at a steady rate of 3 meters per second while Olivia ran at a steady rate of 2 meters per second.

1. Make a table to show how many meters each sister was from the starting line at various times.

	0	1	2	3	4	5	6
A	0	3	6				
Ol.	4	6	8				

2. On the same grid, draw a graph for each sister showing the relationship between distance from the starting line and time. Compare the graphs.



Math Link

When you compare two things, look at both similarities and differences.

3. Is Alita's distance from the starting line proportional to time? Is Olivia's distance proportional to time?

Alita = proportional $(0,0)$
 Olivia = not prop. $(0,4)$

4. For each sister, write a rule in symbols to relate distance d and time t . How are the numbers in the rules reflected in the graphs?

Alita $d = 3 \cdot t$
 Oliva $d = 2 \cdot t + 4$

Think & Discuss

In Chapter 3, you learned about elevations below sea level. For example, suppose Candace ended a hike at an elevation of -150 feet. The number -150 shows two things. First, the 150 tells Candace's distance from sea level. What does the negative sign show?

Describe some other situations in which you might use a negative sign along with a distance. Explain the meaning of the negative sign in each situation.

Develop & Understand: B

Five brothers ran a race. The twins began at the starting line. Their older brother began behind the starting line, and their two younger brothers began at different distances ahead of the starting line. Each boy ran at a fairly uniform speed. Here are rules for the relationship between distance d meters from the starting line and time t seconds for each boy.

Adam: $d = 6t$

Brett: $d = 4t + 7$

Caleb: $d = 5t + 4$

5. Which brothers are twins? How do you know?

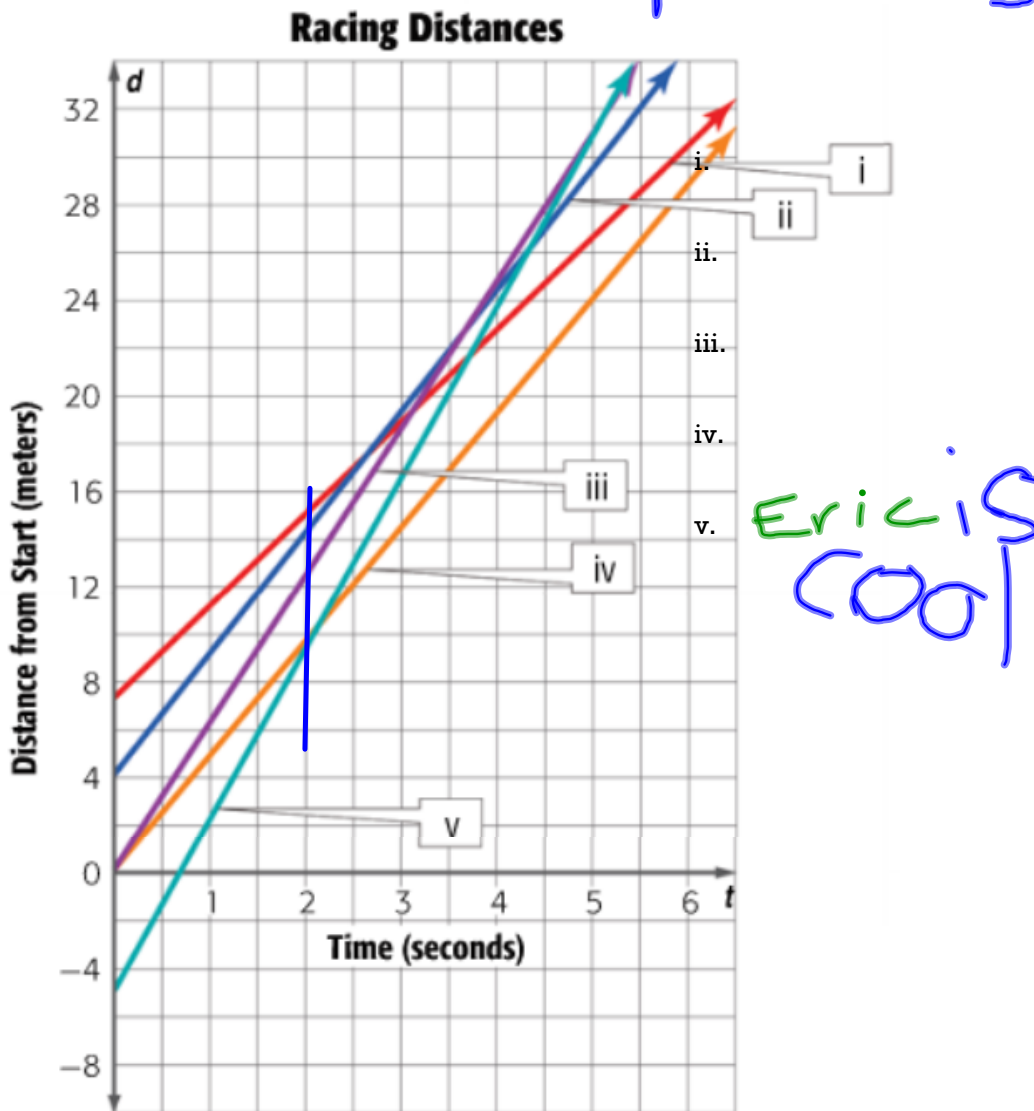
Which brother is the oldest? How do you know?

A + D twins $(0,0)$
 Eric -5
 $(0,-5)$

6. For each brother, describe how far from the starting line he began the race and how fast he ran.

Adam: 6mps $d = 6t + 0 \leftarrow$ at the S.L. e 399 - 400
 Brett: 4mps $d = 4t + 7 \leftarrow$ 7m ahead
 Caleb: 5mps $d = 5t + 4 \leftarrow$ 4m ahead
 David: 5mps $d = 5t + 0 \leftarrow$ at the S.L.
 Eric: 7mps $d = 7t - 5 \leftarrow$ 5m behind

7.



8. What events match the intersection points of the graphs?