Rates – Day 6
Assignment

Name _____
Date _____ Period _____

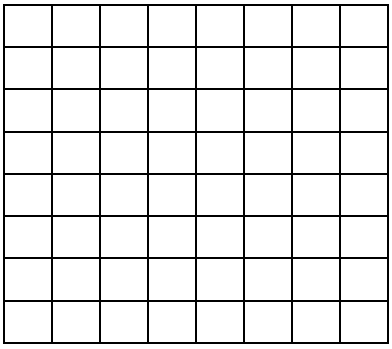
Alvin and Theodore are brothers who want to race. Alvin walks 2.5 meters per second and Theodore walks 1 meter per second, and gets a 45 meter head start. There are many different strategies you could use to determine a good distance for the race. Some are more efficient than others. Here are three:

1. Make a table showing time and distance data for both brothers.
2. On the same set of axes, graph time and distance data for both brothers.
3. Write an equation for each brother showing the relationship between the time and the distance from the starting line.

1. Make a table showing the distance each brother is from the starting line at several different times during the first 40 seconds.

Time (seconds)	Theodore's distance from starting line (meters)	Alvin's distance from starting line (meters)
0		
10		
20		
30		
40		

2. On the same set of axes, graph the time and the distance from the starting line for both brothers.



3. Write an equation for each brother showing the relationship between the time and the distance from the starting line.

Alvin _____ Theodore _____

4. How far from the starting line will Alvin overtake Theodore?

5. After how many seconds will Alvin overtake Theodore?

Rates – Day 6
Assignment

Name _____
Date _____ Period _____

6. After 3 seconds into the race, who will be ahead and by how much?

7. How far will Theodore be from the starting line when Alvin has walked 10 meters?

8. Which graph is steeper?

9. How can you determine which of the two lines will be steeper from their tables and from their equations?

10. At what points do Alvin's and Theodore's graphs cross the y-axis? What do these points mean in terms of the race?

11. How can you predict where a graph will cross the y-axis from a table and an equation?

Alvin's brother Simon joins the race. Simon has a head start of 20 meters and walks at a rate of 2 meters per second.

12. Complete the table below to show Simon's distance from the starting line for 0 to 7 seconds.

Time (seconds)	0	1	2	3	4	5	6	7
Distance (meters)	20							

13. Write an equation that gives the relationship between Simon's distance from the starting line, d, and the time, t.