

The Tortoise and the Hare

And the Rat too...

The Scenario

The Tortoise and the Hare finally have their long awaited rematch. The race is going to be a quarter-mile long. (Note: 1 mile = 5,280 feet) The Tortoise gets a 1,000 foot lead and runs at 9 inches per second. The Hare begins at the starting line and runs at a rate of 6 feet per second. There is also a rat in this race. The Rat starts 1,200 feet ahead of the Hare and runs back towards the starting line at a rate of 2 feet per second.

Your Assignment

1. Create equations for each of the runners as well as the one-minute mark and the finish line.
2. Complete the "Calculations" page, answering all of the questions thoroughly and showing all work.
3. Create a graph showing a line for each of the three runners on the same coordinate plane. Use a domain of $0 < x < 650$ seconds, and a range of $0 < y < 1500$ feet. Be sure the graph shows all of the following...
 - ✓ The line for each runner labeled with its equation.
 - ✓ The finish line and 1-minute mark labeled with their equations.
 - ✓ All of the intersection points labeled with their coordinates.
4. Write a story about the race that contains the events on the calculations page and information in chronological order.

The Equations

Create equations for each of the runners, relating time x to distance from the starting line y . Also, include an equation for both the one minute mark and the finish line.

Tortoise: _____

Hare: _____

Rat: _____

One Minute Mark: _____

Finish Line: _____

The Calculations

1. When will the Tortoise and Hare pass each other and how far will they be from the starting line?

Time: _____seconds

Distance From Start: _____feet

2. When will the Tortoise and Rat pass each other and how far will they be from the starting line?

Time: _____seconds

Distance From Start: _____feet

3. When will the Rat and Hare pass each other and how far will they be from the starting line?

Time: _____seconds

Distance From Start: _____feet

4. After one minute into the race, how far will each runner be?

Tortoise: _____feet

Hare: _____feet

Rat: _____feet

5. When will the rat cross the starting line?

Time: _____seconds

6. If the race is a quarter mile-long, who will win, and what will be the margin of victory (Both time and distance)?

Winner: _____

Margin of Victory: _____seconds

_____feet

NAME _____

