

Four brothers run a race. The twins begin at a distance ahead of the starting line. The oldest brother starts behind the starting line. The youngest brother starts at the starting line. Each boy runs at a fairly uniform speed. The rules that relate distance (d meters) from the starting line and time (t seconds) for each boy are given.

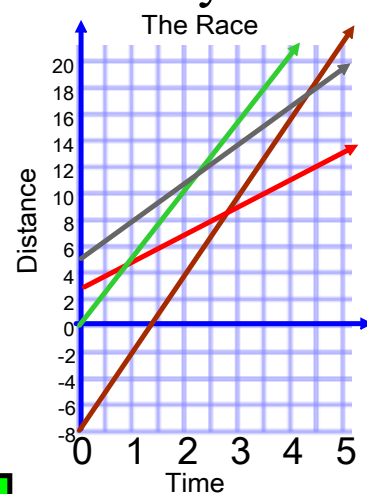
Ed: $d = 2t + 3$ →

Joe: $d = 6t - 8$ →

Bob: $d = 5t$ →

Jim: $d = 3t + 5$ →

Which graph represents which brother?



Next Question

Ali walks at a certain speed. A graph of the distance he walks over time is drawn, with time in seconds on the horizontal axis and distance in feet on the vertical axis. The slope of the line is found to be 8. At what speed in feet per second does Ali walk?

$$\text{Slope} = \text{Speed}$$

$$\text{Speed} = 8 \text{ fps}$$

Next Question

A truck moves at a speed of 45 miles per hour. If you graphed the distance the truck moves over time, ~~with time in hours on the horizontal axis and distance in miles on the vertical axis,~~ what would be the slope of the line?

Next Question

Slope = 45

Speed = Slope

Anna walks toward the mall. The graph below shows her distance in meters from the mall and time in seconds. What is the slope of the line?



Esmæ ran a race with her friend, Lilly. Esmæ let Lilly start 8 meters ahead of the starting line. Esmæ ran at a steady rate of 4 meters per second while Lilly ran at a steady rate of 2 meters per second. For each friend, write a rule in symbols to relate distance d and time t .

Esmæ: $d = 4t$

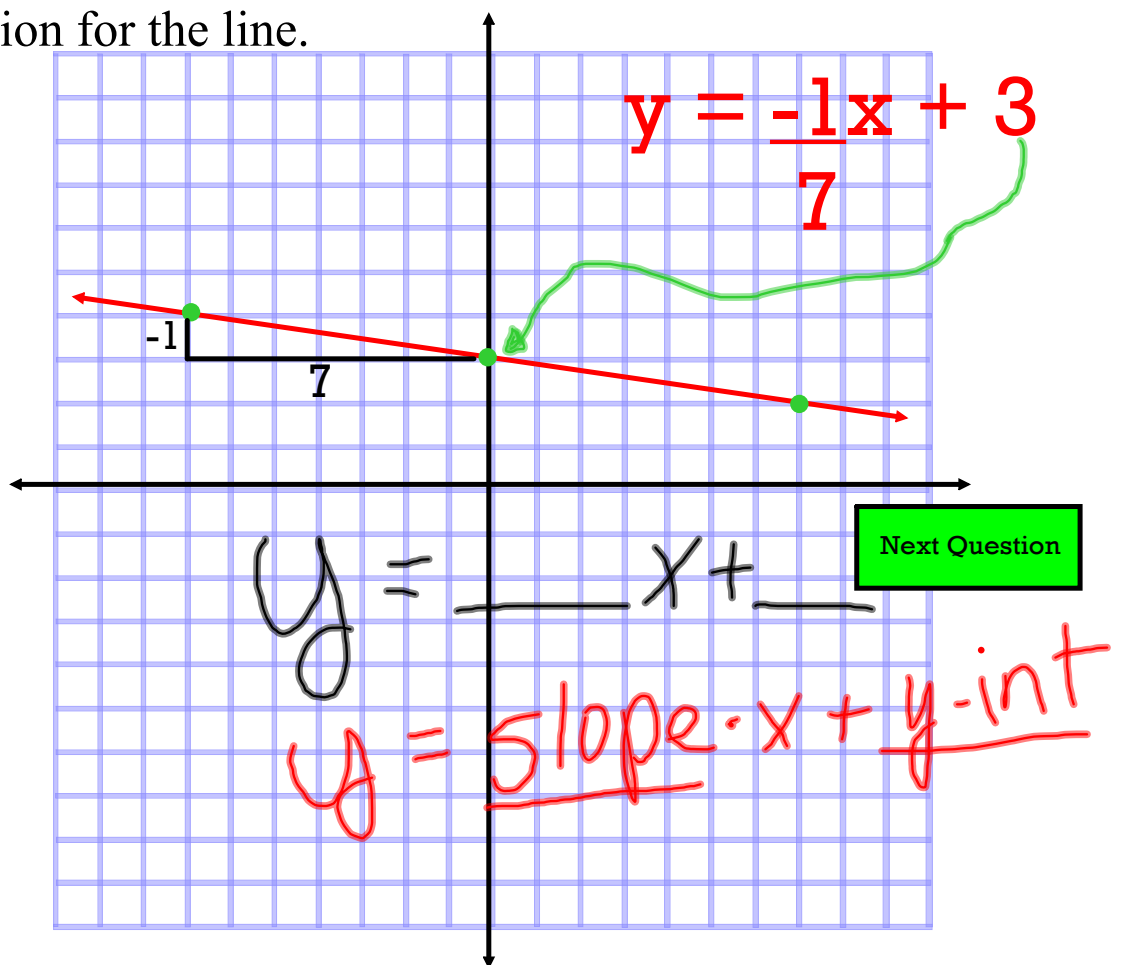
Lilly: $d = 2t + 8$

↑
speed

↑
headstart

Next Question

The graph below shows a linear relationship. Write an equation for the line.



Four brothers run a race. The twins begin at a distance ahead of the starting line. The oldest brother starts behind the starting line. The youngest brother starts at the starting line. Each boy runs at a fairly uniform speed. The rules that relate distance (d meters) from the starting line and time (t seconds) for each boy are given.

John: $d = 3t + 5$

Mike: $d = 4t + 6$

Greg: $d = 7t - 8$ **oldest, starts 8 m behind starting line, runs 7mps**

Paul: $d = 5t$ **youngest, starts at the starting line, runs 5 mps**

For the oldest and the youngest brother, describe how far from the starting line they began and how fast they ran.

Next Question

Four sisters run a race. The twins begin at the starting line. The oldest sister begins behind the starting line, and the youngest sister begins ahead of the starting line. The rules that relate the relationship between distance (d meters) from the starting line and time (t seconds) for each girl are given.

Caroline: $d = 3t$ **Twin**

Celine: $d = 1t + 3$

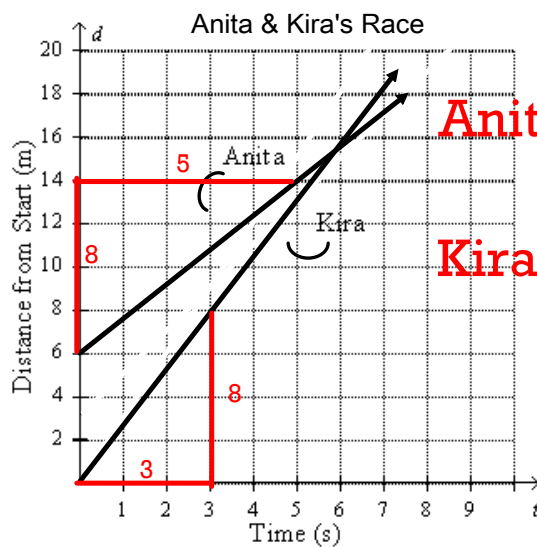
Olivia: $d = 2t$ **Twin**

Deborah: $d = 7t - 3$

Which sisters are the twins?

Next Question

Anita and Kira are running a race. The graph shows the relationship between the distance from the starting point d and the time t for both Anita and Kira. Using the graph, find Anita's speed a and Kira's speed k in meters per second.



$$\text{Anita} = \frac{8}{5} = 1.6 \text{ mps}$$

$$\text{Kira} = \frac{8}{3} = 2.\bar{6} \text{ mps}$$

Next Question

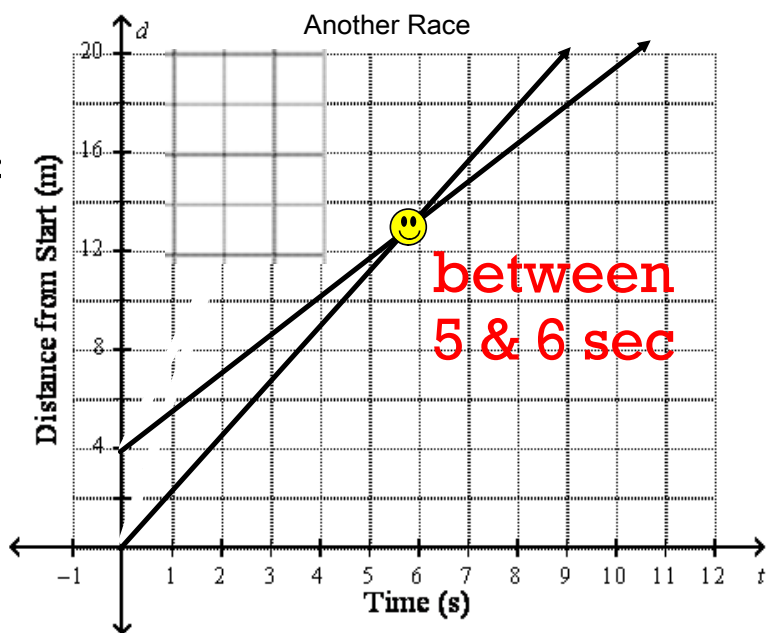
Two brothers run a race. Darrell begins 4 meters ahead of the starting line, while Roger begins at the starting line. The rules below relate distance (d meters) from the starting line and time (t seconds).

Roger: $d = 1.8t$

Darrell: $d = 2.25t + 4$

After how many seconds does Roger pass Darrell?

Next Question



Four cyclists participate in a race. The rules that relate distance from the starting line (d meters) and time (t seconds) are given.

Ali: $d = 8t$ **proportional**

Wang: $d = 15t + 12$

Robin: $d = 9t$ **proportional**

Pablo: $d = 20t - 10$

Which cyclists' rules are proportional?

Next Question

Omar and his friends decide to meet at the mall. The rules that relate distance (d meters) from the mall and time (t seconds) are given.

Omar: $d = 0.6t$

George: $d = 0.85t + 10$

Fred: $d = -1t + 15$ **opposite**

Ron: $d = -1.3t + 30$ **opposite**

Harry: $d = 0.7t$

Which friends walk in the opposite direction as Omar?

Next Question

Four friends go to a bowling alley. Each of them throws a ball. The rules relating the distance the ball travels (d meters) and the time (t seconds) are given.

Tina: $d = 1t + 0.5$

Ramon: $d = 2t + 0.3$

Damien: $d = 0.5t - 0.1$ **behind the line**

Nikita: $d = 1.5t$

Next Question

Who was behind the line while throwing the ball?

Trudy has a remote-controlled toy car. The rule for the relationship between the distance (d meters) from the starting line and the time (t seconds) for the car is $d = -1t - 10$. What does the rule reveal about the starting position and the direction in which the car moves?

**starting position = 10 meters behind the
starting line**

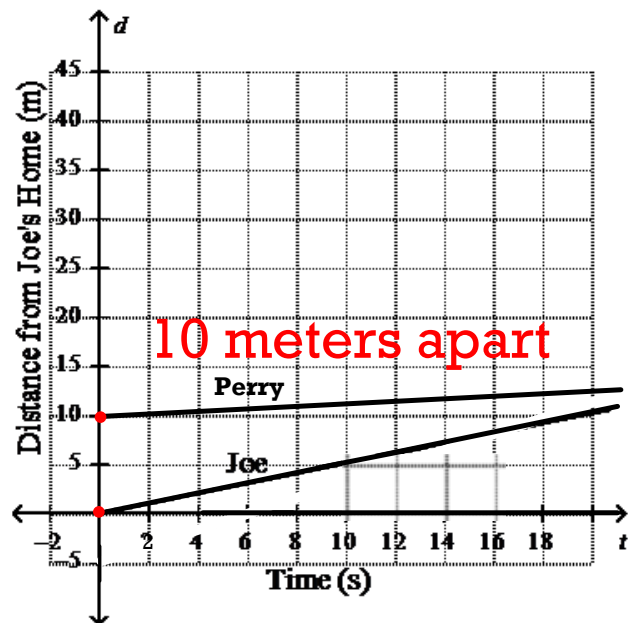
direction = backwards (away from the line)

Next Question

Joe and Perry both walk from their homes in the direction of school. The graph below shows the distance covered by each (d meters) and time (t seconds).

What is the distance in meters between Perry's and Joe's homes?

Next Question



Four brothers participate in a car race. Rudi begins at the starting line. Erik begins ahead of the starting line. Ulrich and Wolfgang both begin behind the starting line, with Ulrich behind Wolfgang. The graph shows distance (d meters) and time (t seconds).

Using the graph, find who will be in the second position after 3 seconds.

