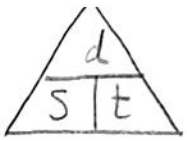


Name: _____ Date: 10/11/19

Science 7 Velocity is speed with a DIRECTION. Motion

Aim: I can accurately read a motion graph and determine when a difference in speed is taking place.

Do Now:

1. A vehicle travels 2345 m west in 315 s toward the evening sun. What is its average velocity? (Remember: Speed and Velocity are calculated the same way except velocity has a direction attached. Velocity=distance/time)

D T

Formula	$V = \frac{d}{t}$
Substitution	$V = \frac{2345m\ (west)}{315s}$
Final Answer with Units	V= 7.4 m/s west

2. A roller coaster car rapidly losing velocity as it rolls up hill. As it starts up the slope, its velocity is 22 m/s. But 6 seconds later, near the top of the slope, its velocity is 4 m/s. What is its average acceleration?

V

Formula	
Substitution	
Final Answer with Units	

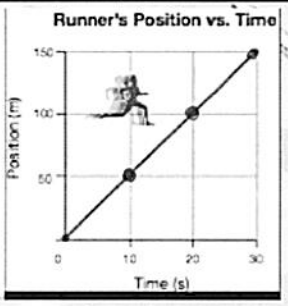
Notes: Graphing Motion

Mary is training for a race. Calculate her speed when she is running for 10s, 20 s and 30 s.

Marys' Speed at 10s	Marys' Speed at 20s	Marys' Speed at 30s
5.0 m/s $S = \frac{D}{T}$ $S = \frac{50m}{10s}$	5.0 m/s $S = \frac{D}{T}$ $S = \frac{100m}{20s}$	5.0 m/s $S = \frac{D}{T}$ $S = \frac{150m}{30s}$

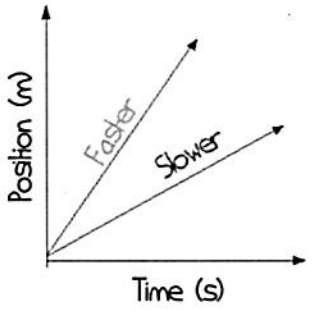
She is traveling at Constant speed. Same speed over a period of time

Time (s)	Position (m)
0	0
10	50
20	100
30	150

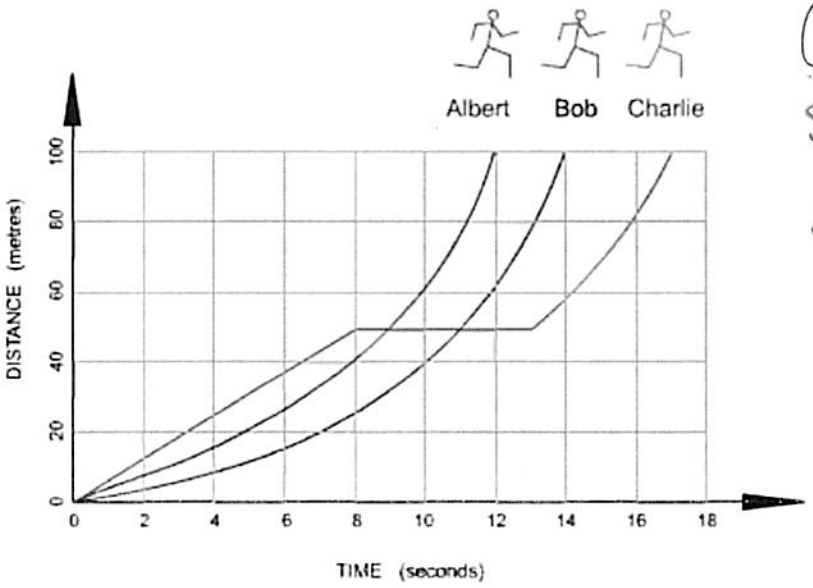


Slope:

- The steepness of a graph line; the ratio of the vertical change (the rise) to the horizontal change (the run).
- A bigger slope means a steeper line which means a faster speed.



Let's Practice: Albert, Bob and Charlie are running a race. Use the graph below to answer the following questions.



Albert

$S = \frac{d}{t}$

$S = \frac{100\,m}{12\,s}$

$S = 8.3\ m/s$

Bob

$S = \frac{d}{t}$

$S = \frac{100\,m}{14}$

$S = 7.1\ m/s$

Charlie

$S = \frac{d}{t}$

$S = \frac{100\,m}{17}$

$S = 5.9\ m/s$

1. Which runner won the race? Albert
2. Which runner stopped for a rest? Charlie
3. How long did he stop for? 5 seconds (13-8)
4. How long did Bob take to complete the race? 14 seconds
5. Calculate Albert's average speed.

$S = \frac{d}{t}$

$S = \frac{100\,m}{12\,s}$

$S = 8.3\ m/s$