Name: _____ **TC**

Classwork 14

1. Find $\lim_{x \to 2} \frac{x + 3}{x + 2}$

2. Find $\lim_{x \to 2+} \frac{x + 3}{x - 2}$

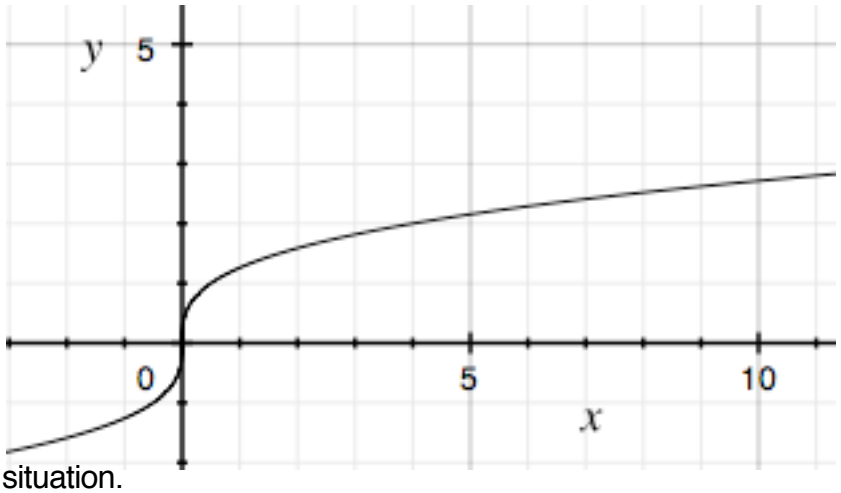
3. Find $\lim_{x \to 3} \frac{x^2 + 3x - 18}{x^2 - 10x + 21}$

4. Find $\lim_{x \to \infty} \frac{x^2 + 3x - 18}{x^2 - 10x + 21}$

5. Find $\lim_{x \to 0} \frac{2x^6 - x^3 + 3x^2}{x^7 + 5x^4 - 10x^2}$

6. Find $\lim_{x \to 2} \frac{\sqrt{x + 7} - 3}{x - 2}$

7. Find $\lim_{y \to 2} x$ using the graph.



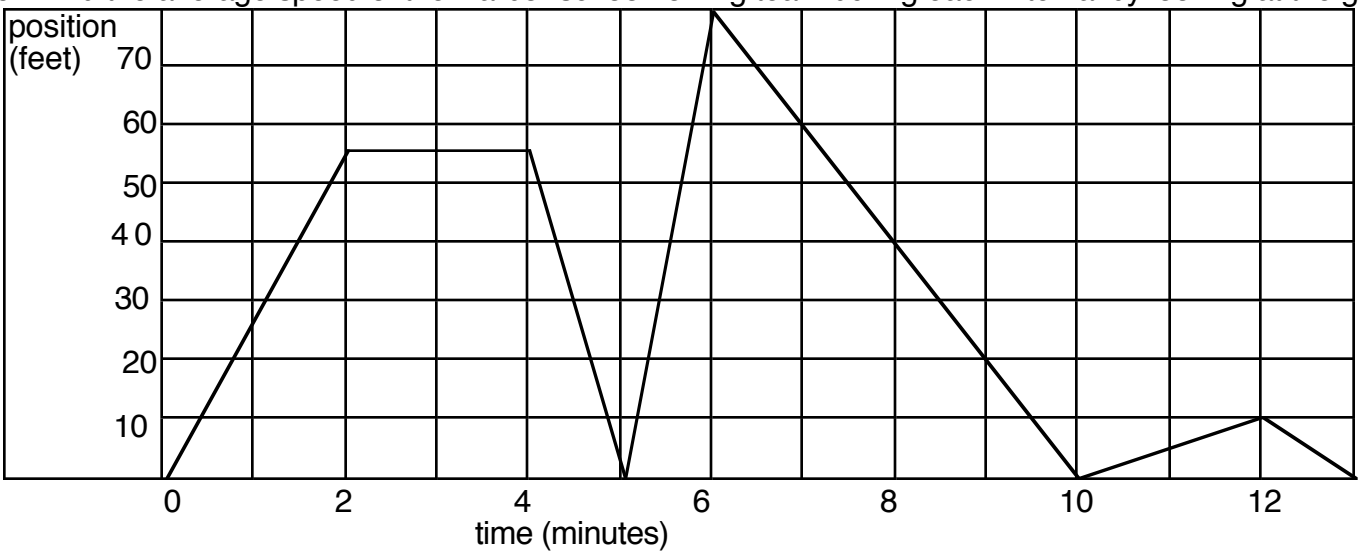
8. Find the speed in each situation.

a) I walk 20 meters in 10 seconds.

b) I run 15 yards to the train in 3 seconds.

c) Lettie G., running back for the Harbor Sharks, is on the opposing team's 30 yard line with 59 seconds left in the game when she catches a pass. She makes it into the end zone with :02 left. How fast did she run?

9. Find the average speed of the Harbor school rowing team during each interval by looking at the graph.



a) Between 0 and 2 minutes b) between 4 and 5 minutes c) between 6 and 10 minutes

When is the boat stopped?

When is it moving the fastest?

How can you tell when it is moving towards shore and when it is moving away from shore?

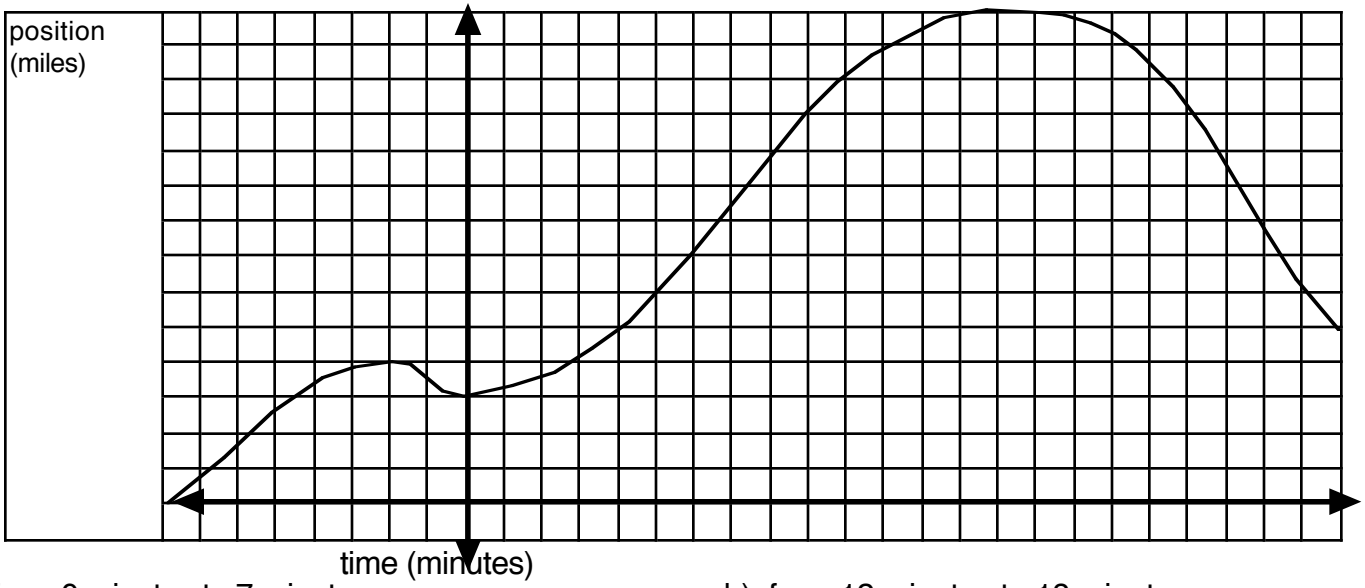
When is the slope of the graph 0 ?

When is the slope the highest?

When is the slope negative and when is it positive?

How does slope relate to speed? Why?

10. Find the speed of a bus driving through Brooklyn based on the graph.



a) from 0 minutes to 7 minutes

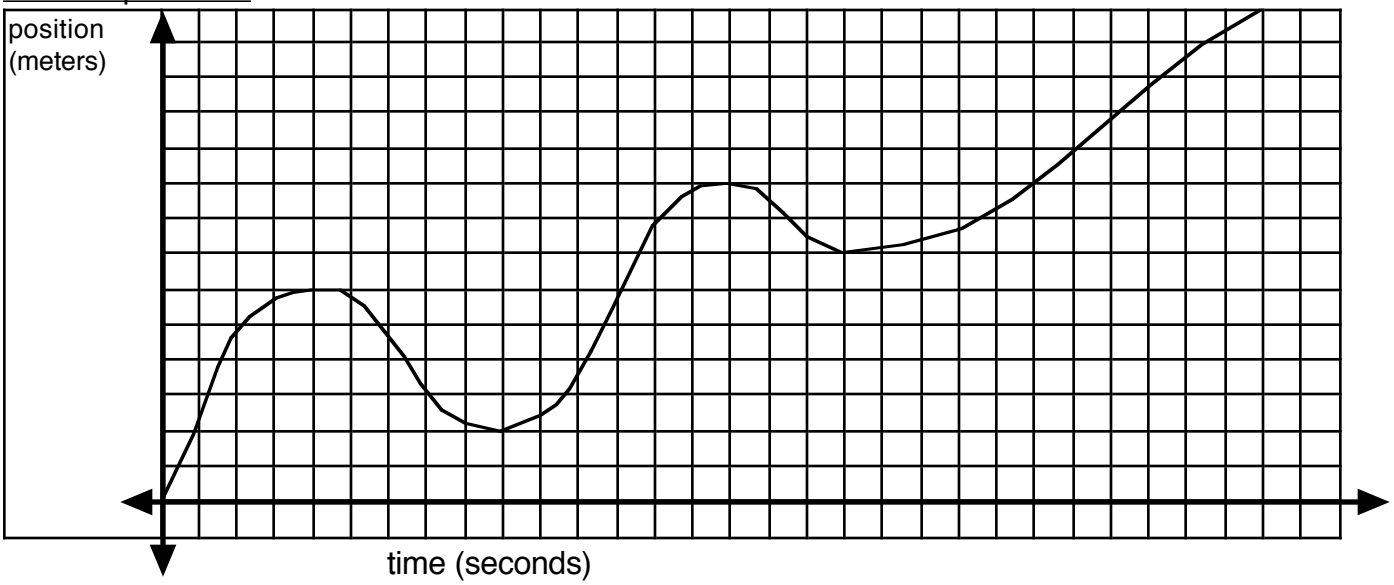
b) from 12 minutes to 18 minutes

c) from 16 minutes to 18 minutes

How fast is the bus going 17 minutes into the journey? (Imagine the bus driver looked down at the speedometer...)

How does this relate to limits?

Practice problems



1. Calculate the average speed of the object over each interval.
   a) 1 s to 10 s b) 2 s to 8 s c) 3 s to 7 s d) 4s to 6 s

2. Find the instantaneous speed of the object at 5 seconds.

3. Draw a representation of that speed on the graph.

4. Write a limit representing the instantaneous speed.