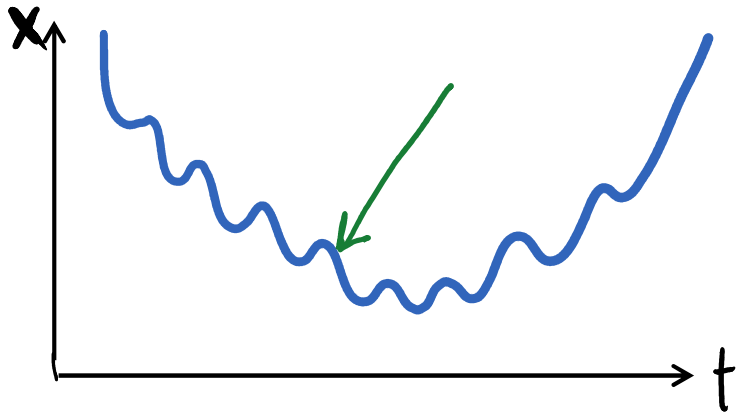
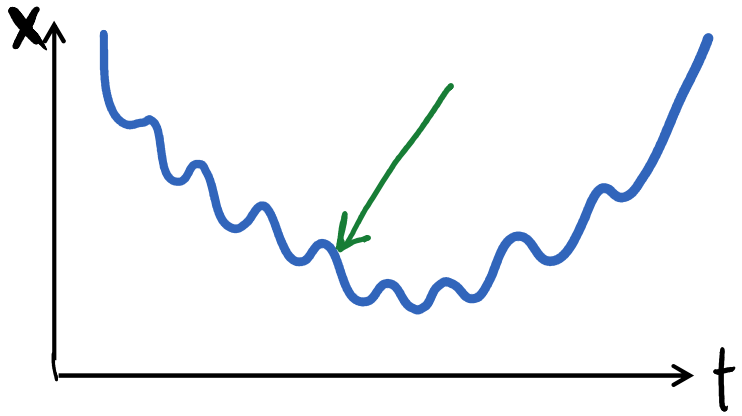


The x position of an object is graphed as a function of time above. The x-velocity of the object at the time indicated by the green arrow:

A) can only be defined approximately, since the curve is not straight at this point.
B) can be defined precisely

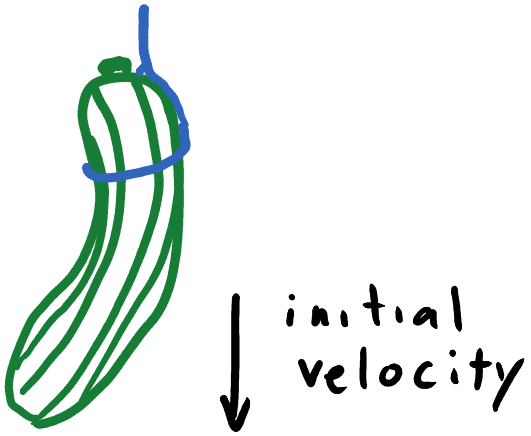
Extra: if you answered B, do you think this is true for all functions, or are there other functions for which we could not precisely define the velocity?



The x position of an object is graphed as a function of time above. The x-velocity of the object at the time indicated by the green arrow:

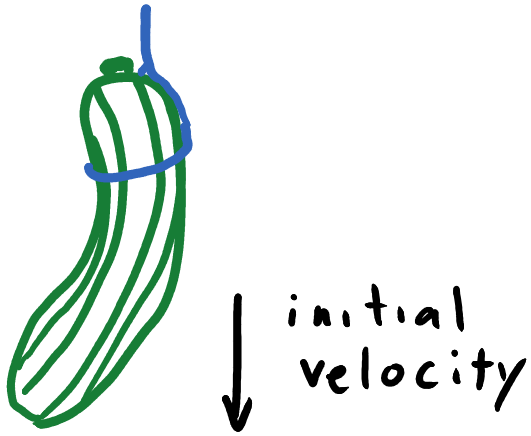
A) can only be defined approximately, since the curve is not straight at this point.
B) can be defined precisely
C) does not exist

Assuming the function is smooth, if we zoom in enough on the function at this point, it will look more and more like a straight line. We can define the velocity as the slope of the line, which becomes perfectly straight in the limit where we zoom in infinitely.



The acceleration of the giant zucchini at the place where it reaches its lowest point is

A) upward.
B) downward.
C) zero.
D) not well defined.



The acceleration of the giant zucchini at the place where it reaches its lowest point is

A) upward.
B) downward.
C) zero.
D) not well defined.

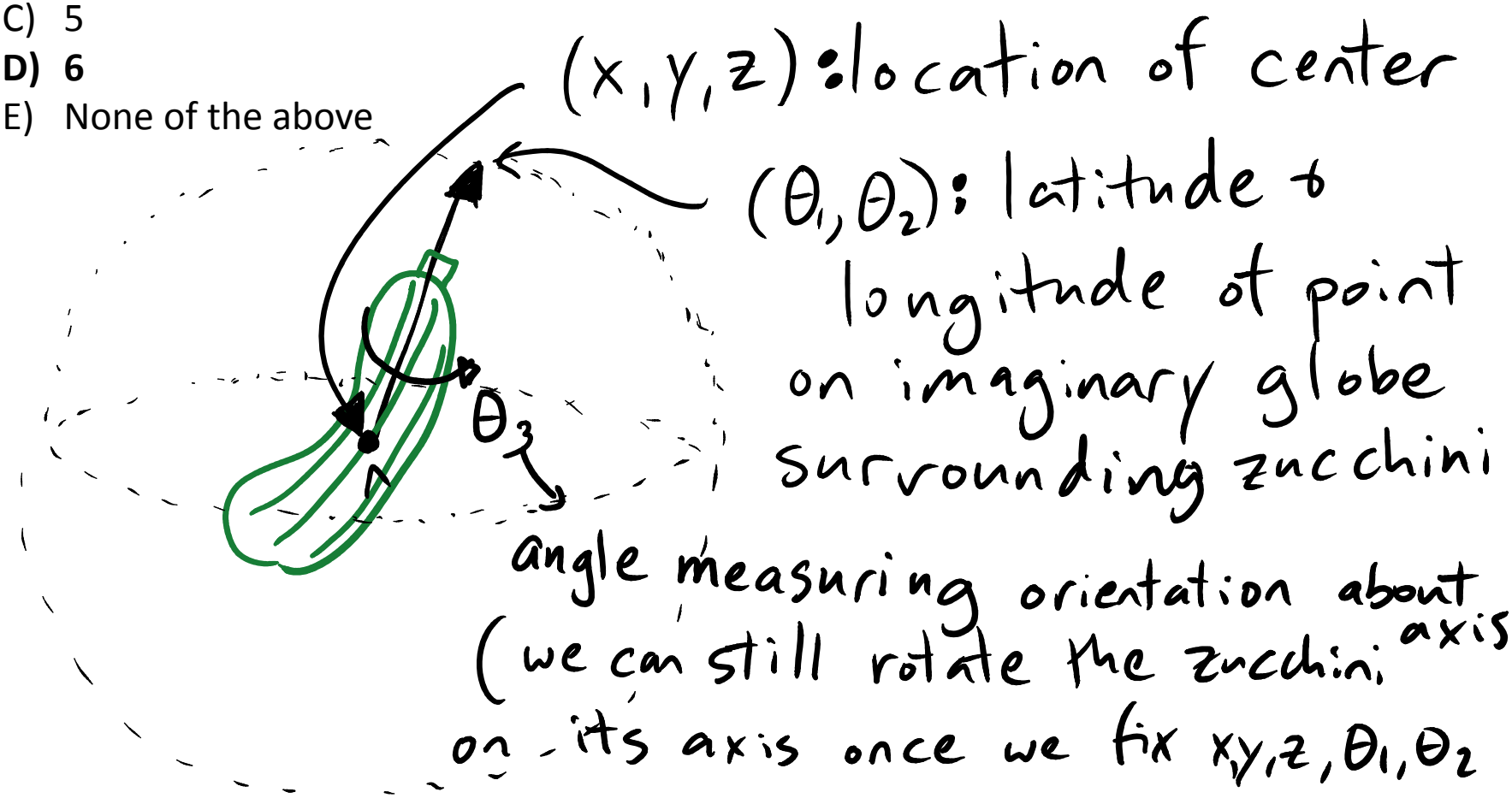
Acceleration is $\Delta v / \Delta t$. At the turning point, v_{after} is positive (upwards) and v_{before} is negative (downwards), so $\Delta v = v_{after} - v_{before}$ is positive (upwards).

How many numbers do we need to accurately describe the precise location of a giant zucchini in the Science One classroom?

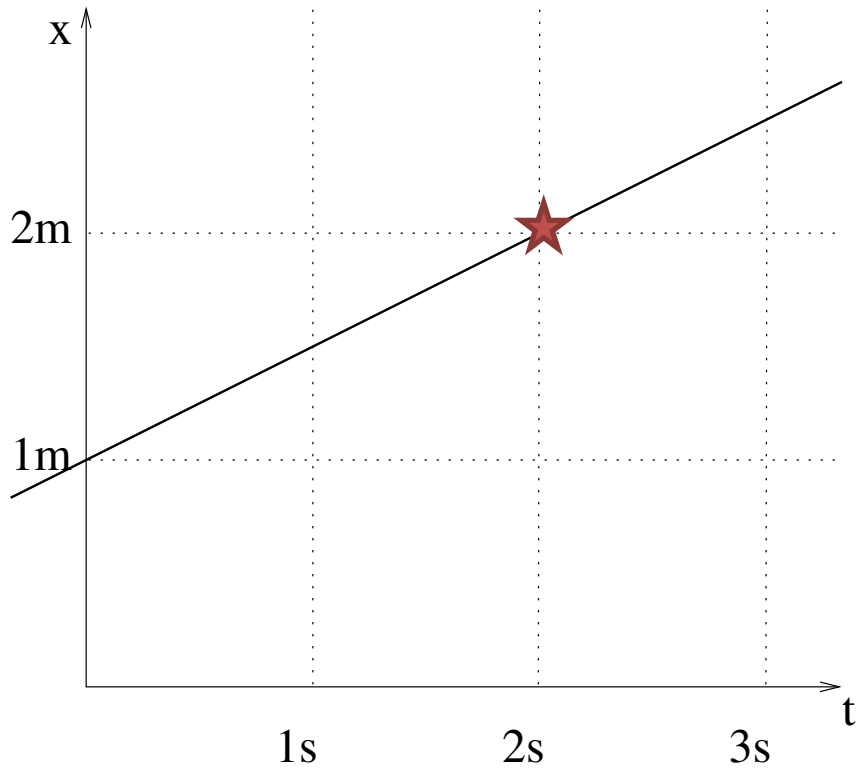
A) 3
B) 4
C) 5
D) 6
E) None of the above

How many numbers do we need to accurately describe the precise location of a giant zucchini in the Science One classroom?

A) 3
B) 4
C) 5
D) 6
E) None of the above

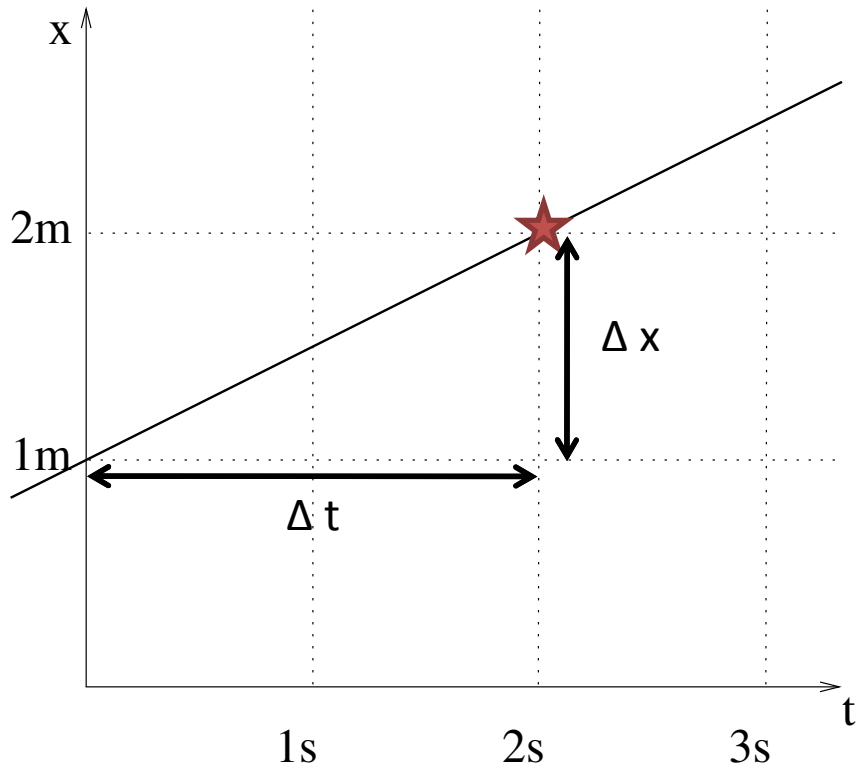



SCIENCE PHOTO LIBRARY



In this position versus time graph, the velocity at the point ★ :

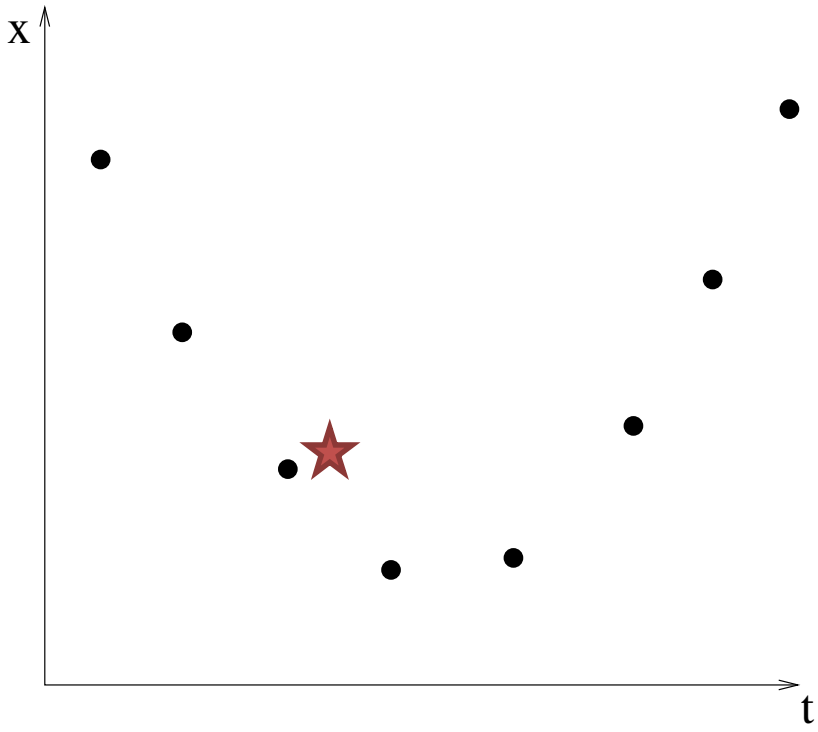
A) is 2 m/s
B) is 1 m/s
C) is 0.5 m/s
D) cannot be determined



$v_x = \Delta x / \Delta t$

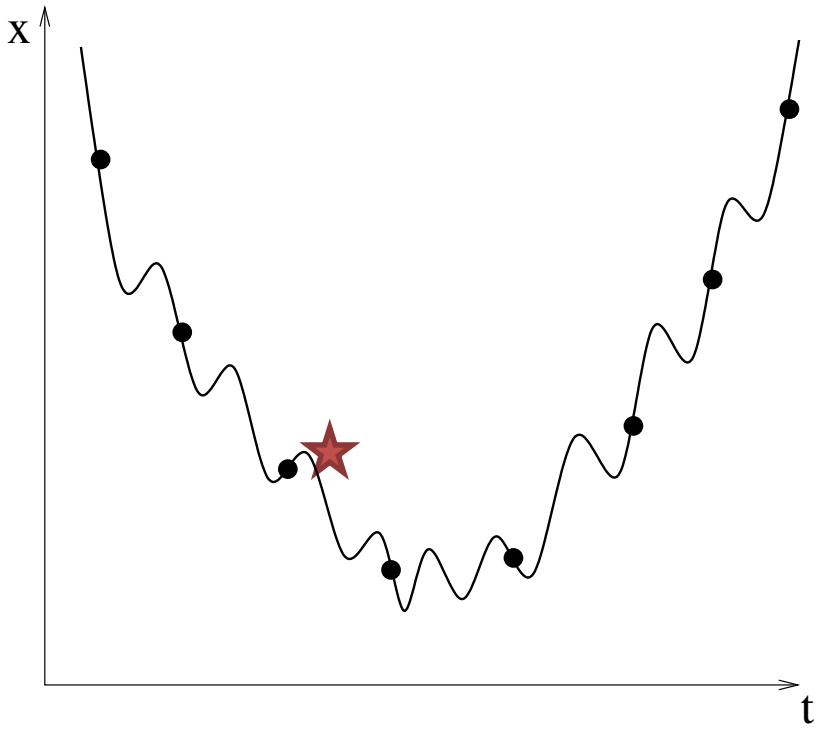
In this position versus time graph, the velocity at the point ★ :

A) is 2 m/s
B) is 1 m/s
C) is 0.5 m/s
D) cannot be determined



Data for the motion of an object is plotted on a position versus time graph. The velocity at the point beside the ★

A) is negative
B) is positive
C) is zero
D) cannot be determined



Data for the motion of an object is plotted on a position versus time graph. The velocity at the point ★

A) is negative
B) is positive
C) is zero
D) cannot be determined : can only determine average velocity over intervals between points if we only know specific points