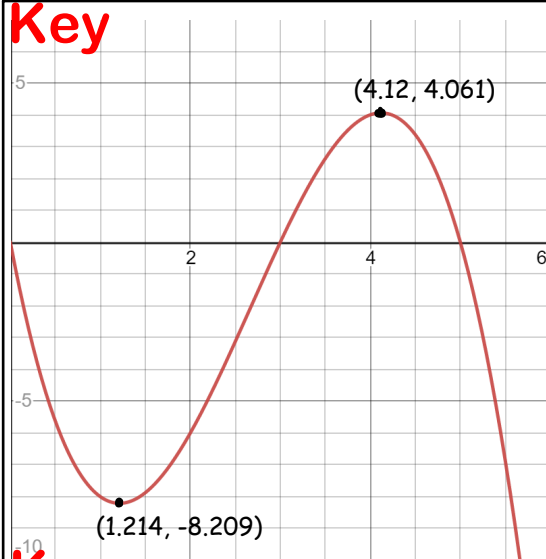


A particle moves along the x -axis so that its velocity at time $0 \leq t \leq 6$ is given by a differentiable function v whose equation is $v(t) = -t^3 + 8t^2 - 15t$.

- a) Find both the time and position of the particle when the particle is furthest to the left.
- b) For how many values of t , is the particle at $x = -8$?
- c) On the interval $(2, 3)$, is the speed of the particle increasing or decreasing?
- d) During what intervals, if any, is the acceleration negative?

May 20-3:58 PM

Key



Key

$v(t) = -t^3 + 8t^2 - 15t$
 $\int_0^3 v(t) dt = -15.75$
 $\int_3^5 v(t) dt = 5.33333333333$
 $\int_5^6 v(t) dt = -7.58333333333$
 $-15.75 + 5.3333 - 7.5833 = -18$

- a) $t = 6$, and $v(t) = -18$
- b) one
- c) speed is decreasing (velocity is increasing)
- d) $(0, 1.214)$ and $(4.12, 6)$

Key

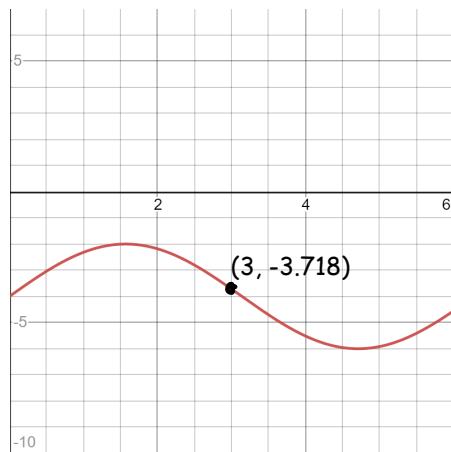
Key

Apr 16-9:32 AM

Write the equation of the line tangent to $f(x) = 2 \sin x - 4$, where $x = 3$.

May 20-4:12 PM

Key Write the equation of the line tangent to $f(x) = 2 \sin x - 4$, where $x = 3$. **Key**



1	$f(x) = 2 \sin x - 4$	X
2	$f(3)$	X
	= -3.71775998388	
3	$f'(3)$	X
	= -1.9799849932	

$$y + 3.7178 = -1.97998(x - 3)$$

$$y + 3.7178 = -1.97998x + 5.93995$$

$$y = -1.980x + 2.222$$

Key

Key

Apr 16-9:32 AM