April 8

How do you take the derivative of a function?

What does the derivative tell you about a function?

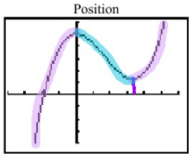
April 8

Students will verbally explain how to sketch the graphs of functions and derivatives

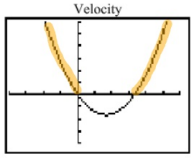
(using the words:
increasing, decreasing, positive, negative…)

Use the graphs below to answer the following questions.

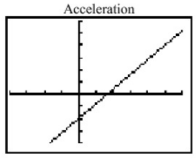
Position



Velocity



Acceleration



a. When is the position **increasing**? $x<0$ and $x>3.1$

b. When is the velocity positive (above the x-axis)? $x<0$ and $x>3.1$

c. When is the position **decreasing**? $0<x<3.1$

d. When is the velocity negative (below the x-axis)? $0<x<3.1$

e. When is the velocity **increasing**? $x>2$

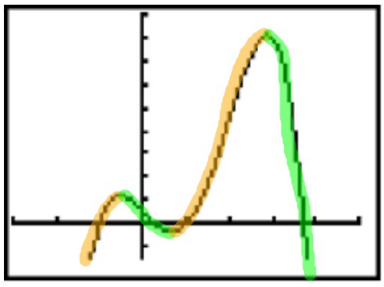
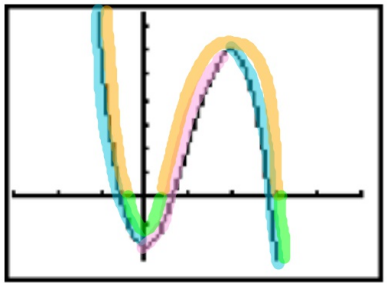
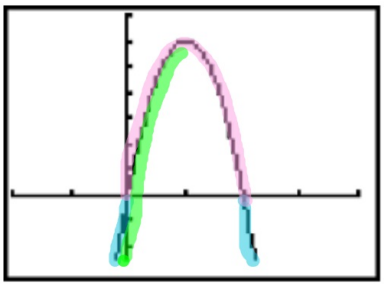
f. When is the acceleration positive (above the x-axis)? $x>2$

g. When is the velocity **decreasing**? $x<2$

h. When is the acceleration negative (below the x-axis)? $x<2$

i. How does the position graph compare to the velocity graph? How does the velocity graph compare to the acceleration graph?

When position decreases
the velocity is negative
When position increases
the velocity is positive

Position	Velocity	Acceleration
		

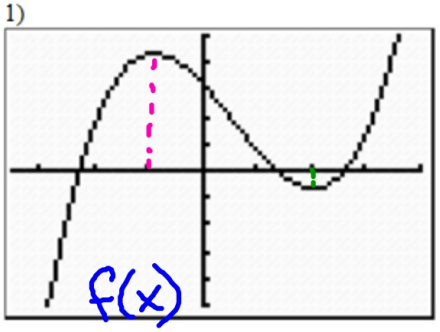
If the function is increasing (going up)

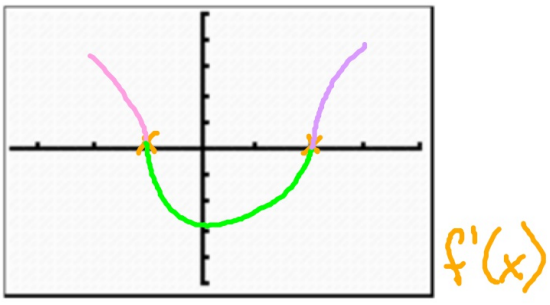
then the derivative is positive (above x-axis)

If the function is decreasing (going down)

then the derivative is negative (below x-axis)

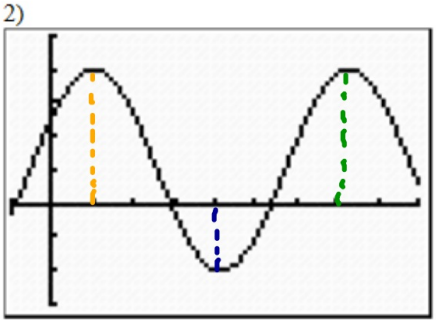
1)

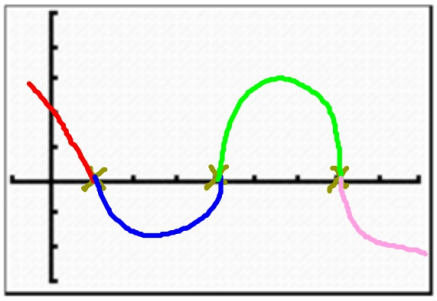




	-1		2	
Critical Points				
Sign of Derivative	+	−		+
Behavior of Function	inc	dec		inc

2)





Critical Points		1		4		7	
Sign of Derivative	+		−		+		−
Behavior of Function	inc		dec		inc		dec