



Elkins School District
Alternate Method of Instruction (AMI)



AMI Day # 2

School Name	Elkins High School
Teacher Name	Driscoll
Subject / Course Name	AP Calculus
Assignment Description	ONLINE: PAPER HARD-COPY: Complete Limits WKST 1-15, 1-16 & bring to class upon return.
Contact Information	PHONE/TEXT: EMAIL ADDRESS: tdriscoll@elkinsdistrict.org OTHER: google classroom

Assignments will be graded and entered into the gradebook according to the teacher's grading system. Attendance will be recorded based upon completion of the assignment.

AP Calculus

Chapter 2 Section 4

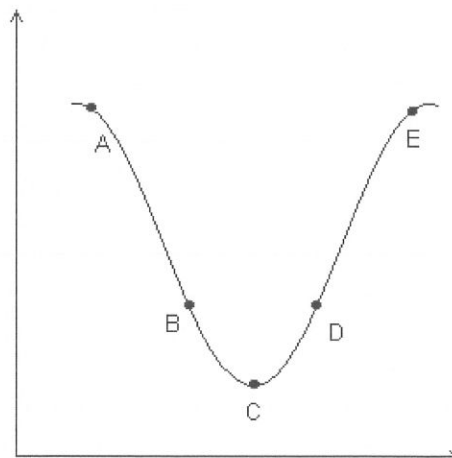
1. A curve has equation $y = f(x)$.

Write an expression for the slope of the secant line through the points $P(3, f(3))$ and $Q(3+h, f(3+h))$.

Write an expression for the slope of the tangent line at P .

2. Consider the slope of the given curve at each of the five points shown.

List these five slopes in decreasing order and explain your reasoning.

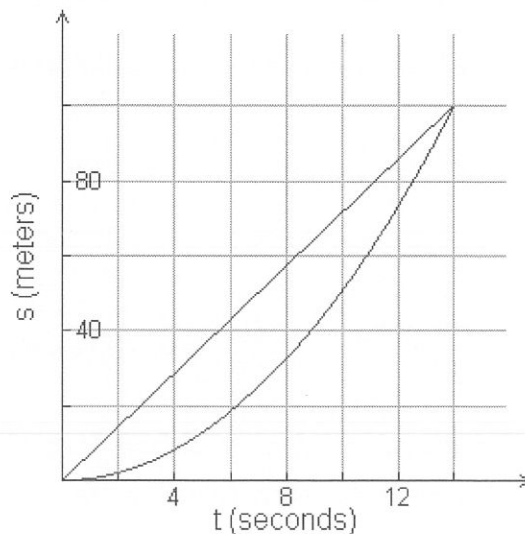


3. Shown at the right are the position functions of two runners, A and B , who run a 100-meter race and finish in a tie. Runner A is the top graph and runner B is the lower graph.

Describe and compare how the runners run the race.

At what time is the distance between the runners the greatest?

At what time do they have the same speed?



In Problems 4 to 7, use the formula $m = \lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$ to find the slope of the tangent line.

4. Find the slope of the tangent to the parabola $y = x^2 + 2x$ at the point $(-3, 3)$.
Use the results to write the equation of the tangent line.

5. Find the slope of the tangent to the curve $y = 3 + 4x - 2x^2$ at the point $(2, 3)$.
Find the equation of the tangent line.
Find the equation of the normal line.

6. Find the slope of the tangent to the curve $y = \frac{1}{2x}$ at the point $\left(2, \frac{1}{4}\right)$.
Find the equation of the tangent line.

7. Find the equation of the tangent to the curve $f(x) = 2 - 3x^2$ when the slope of the tangent is 12.

8. Find the average rate of change of the function $f(x) = \sqrt{x+2}$ over the interval $[2, 23]$.

9. An object dropped from the top of a 200-foot cliff will fall $s = 16t^2$ feet in t seconds.

How far will the object fall in 3 seconds?

What is the average speed over these 3 seconds?

What is the instantaneous speed at $t = 3$ seconds?