Name _____ Date _____

Mr. Schlansky Algebra II

Average Rate of Change

1. The function $h(x)$ is given in the table below. Which of the following gives its average rate of change over the interval $2 \le x \le 6$?

(1) $-\frac{3}{2}$

(2) $\frac{6}{4}$

(3) $-\frac{7}{6}$

(4) -1

x	$h(x)$
0	10
2	9
4	6
6	3

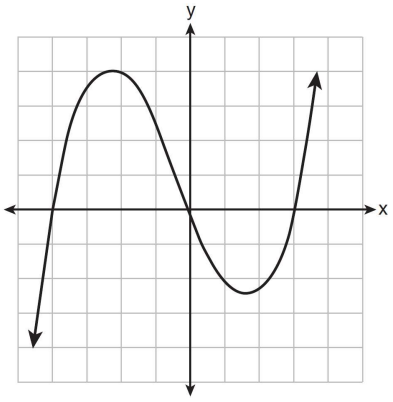
2. The distance needed to stop a car after applying the brakes varies directly with the square of the car's speed. The table below shows stopping distances for various speeds.
Determine the average rate of change in braking distance, in ft/mph, between one car traveling at 50 mph and one traveling at 70 mph.

Speed (mph)	10	20	30	40	50	60	70
Distance (ft)	6.25	25	56.25	100	156.25	225	306.25

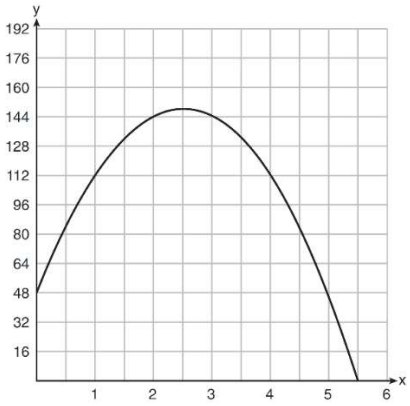
3. What is the average rate of change from 0 to 2?

x	f(x)
0	1
1	2
2	5
3	7

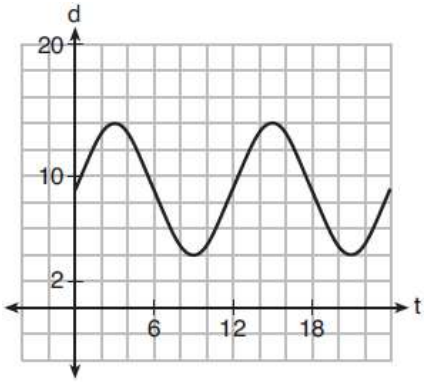
4. The graph of $p(x)$ is shown below. What is the average rate of change over the interval $-4 \le x \le 1$?



5. A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, *y*, of the ball from the ground after *x* seconds. What is the average rate of change of the ball between 1 and 5 seconds?



6. The depth of the water at a marker 20 feet from the shore in a bay is depicted in the graph below. If the depth, *d*, is measured in feet and time, *t*, is measured in hours since midnight, what is the average rate of change of the depth of the water between 3AM and 9AM?



7. For the function $f(x) = 3^x$, find the average rate of change over the interval -5 to -1 rounded to the nearest thousandth.

8. Find the average rate of change of the function $f(t) = 2500(0.97)^{4t}$ over the interval $10 \le t \le 15$ rounded to the nearest tenth.

9. An initial investment of \$1000 reaches a value, $V(t)$, according to the model $V(t) = 1000(1.01)^{4t}$, where t is the time in years. Determine the average rate of change, to the *nearest dollar per year*, of this investment from year 2 to year 7.