NAME _____

Average Rate of Change

1. Find the average rate of change from $x = -1$ to $x = 2$ for each of the functions below.

    a. $a(x) = 2x + 3$ b. $b(x) = x^2 - 1$ c. $c(x) = 2^x + 1$

    d. Which function has the greatest average rate of change over the interval $[-1, 2]$?

2. Find the average rate of change on the interval $[2, 5]$ for each of the functions below.

    a. $a(x) = 2x + 1$ b. $b(x) = x^2 + 2$ c. $c(x) = 2^x - 1$

    d. Which function has the greatest average rate of change over the interval $x = 2$ to $x = 5$?

3. In general as $x \to \infty$, which function eventually grows at the fastest rate?

    a. $a(x) = 2x$ b. $b(x) = x^2$ c. $c(x) = 2^x$

4. Find the average rate of change from $x = -1$ to $x = 2$ for each of the continuous functions below based on the partial set of values provided.

a.

x	-1	0	1	2	3
a(x)	-3	-2	1	6	13

b.

x	-1	0	1	2	3
b(x)	1	3	5	7	9

c.

x	-1	0	1	2	3
c(x)	-2	-1	1	5	13

d. Which function has the greatest average rate of change over the interval **[– 1, 2]**?

5. Consider the table below that shows a partial set of values of two continuous functions. Based on any interval of **x** provided in the table which function always has a larger average rate of change?
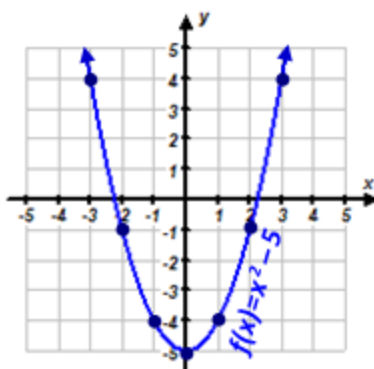
x	f(x)	g(x)
-1	-2	-4
0	0	0
1	3	8
2	7	24

6. Find the average rate of change from $x = 1$ to $x = 3$ for each of the functions graphed below.

a.
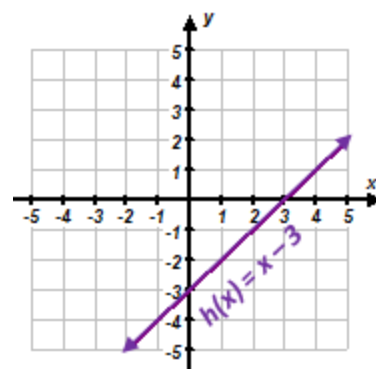

$g(x) = 2^x - 5$

b.

$f(x) = x^2 - 5$

c.

$h(x) = x - 3$

d. Which function has the greatest average rate of change over the interval **[1, 3]**?