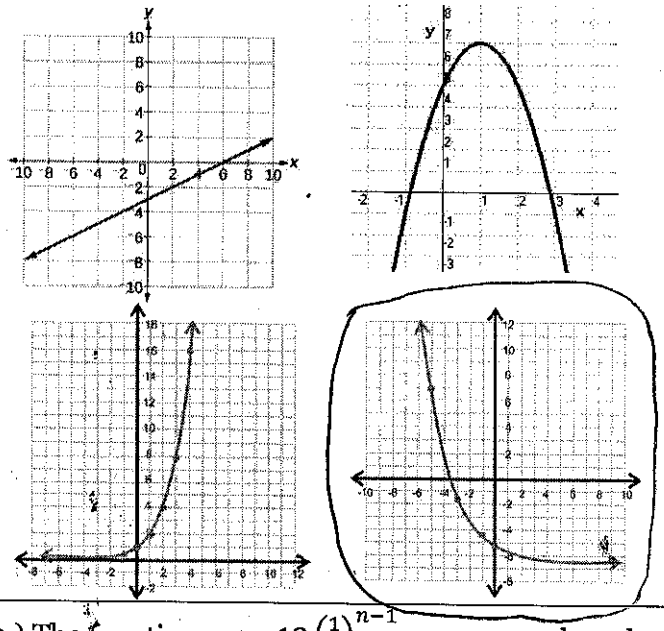
Unit 6: Exponential Functions Study Guide (HONORS)

Calculator Inactive

1.) Which graph models exponential decay?

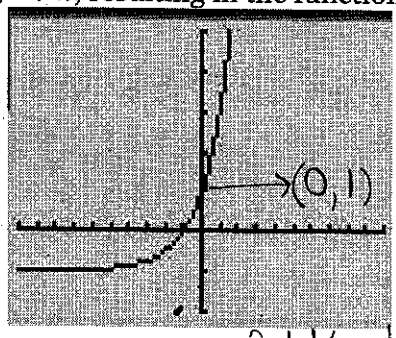


2.) The function $g_n = 12\left(\frac{1}{4}\right)^{n-1}$ represents the nth term in a sequence. What is the sum of the third and sixth terms of the sequence?

12, 3, 3/4, 3/16, 3/64, 3/256

$\frac{192}{256} + \frac{3}{256} = \frac{195}{256}$

3.) The function $f(x) = 2(2)^x$ was replaced with $f(x) = 2(2)^x + k$, resulting in the function below.



What is the value of k?

$2 + k = 1$

$k = -1$

4.) Two functions are shown below:

$f(x) = 2^x$

$g(x) = 16 - 2x$

For what positive integer, x, will the value of $f(x)$ first exceed the value of $g(x)$?

	f(x)	g(x)
1	2	14
2	4	12
3	8	10
4	16	8

X = 4

5.) A club began with four members. Each month, each member brought one new member. Which function can be used to determine the number of members x months after the club began?

A. $f(x) = 2x + 4$

B. $f(x) = 4(2)^x$

C. $y = 4(4)^x$

D. $f(x) = 4x + 2$

6.) In which function is the value of y increasing by a constant percent rate per unit change of x?

A. $f(x) = 10\left(\frac{1}{8}\right)^x$

B. $f(x) = 17\left(\frac{3}{2}\right)^x$

C. $f(x) = -2(-0.75)^x$

D. $f(x) = 8(1.43)^x$

7.) Katie and Jennifer are playing a game.

- Katie and Jennifer each started with 100 points.
- At the end of each turn, Katie's points doubled.
- At the end of each turn, Jennifer's points increased by 200.

At the start of which turn will Katie first have more points than Jennifer?

end of Round	Katie	Jen
0	100	100
1	200	300
2	400	500
3	800	700

Round 4