Bellwork Tuesday, June 3, 2014

1. Write the first 4 terms of each sequence using the given formula.

a) Use this recursive formula:

$a_1 = 7$

$a_n = 2 \cdot a_{n-1} + 5$

7 19 43 91

b) Use this explict formula.

$a_n = 10(n-1)+3$

3 13 23 33

n=1

2. Simplify. $(5+7\sqrt{3})(6-2\sqrt{3})$

	5	$+7\sqrt{3}$
6	30	$42\sqrt{3}$
$-2\sqrt{3}$	$-10\sqrt{3}$	-42

$-12 + 32\sqrt{3}$

3. Simplify. $\dfrac{\sqrt{60m^7n^3}}{\sqrt{3m^4n^{11}}}$

$\sqrt{\frac{60m^7n^3}{3m^4n^{11}}}$ $\sqrt[3]{\frac{20m^3}{n^8}} = \frac{2m\sqrt[3]{5m}}{n^4}$

4. Use the percent change to find the base that would be used in an exponential equation.

a) 11.9% decrease

b = .881

100% − 11.9% = 88.1%

b) 42.5% increase

b = 1.425

5. State the percent change modeled by each equation.

a) $y = 50{,}000(0.438)^x$

43.8%

− 100

56.2% dec

b) $3.44(1.201)^x$

120.1%

− 100

20.1% inc

6. The population of a city has been decreasing 3.8% each year. The population in 2006 was 48,000.

$y = 48{,}000(.962)^x$

a) Find the population in 2013

36,599

b) Find the population in 1995

73,505

c) In how many years (rounded to the nearest hundredth) will there be 30,000 residents in the city?

$30{,}000 = 48{,}000(.962)^x$

$.625 = .962^x$

$\log_{.962}(.625) = x$

$y = 12.13$ yrs