**Chapter 7 Practice Test**

1. Simplify each expression. *(2 points each)*
	1. $\left(\frac{94x^{7}y^{-\frac{1}{3}}z^{7}}{16x^{-\frac{3}{4}}y^{2}z^{\frac{2}{3}}}\right)^{0}$
	2. $\frac{3x^{4}y^{-2}}{x^{5}y^{-9}}$
	3. $\left(\frac{ab}{4}\right)^{-3}$
	4. $r^{6}s^{-3}t^{-1} ·r^{3}s^{-4}t$
	5. $3x^{\frac{1}{2}}y^{\frac{2}{3}} \left(4x^{3}y^{2}\right)^{\frac{1}{2}}$
	6. $3.4^{2} ·64^{\frac{1}{6}}$
	7. $\left(81x^{\frac{4}{3}}\right)^{\frac{1}{2}}$
2. Write the expression $\left(7x\right)^{\frac{3}{4}}$ in radical form. *(1 point)*
3. Write the expression $\sqrt[6]{a^{9}b} $in exponential form. *(1 point)*

1. Graph each function. *(2 points each)*
	1. $y=2 ·3^{x}$





* 1. $y=3 ·\left(\frac{1}{2}\right)^{x}$
1. Suppose the population of a species of insects doubles every year. There are 1600 insects initially. The function $f\left(x\right)=1600·2^{x}$ gives the number of insects after x years. How many insects will there be after 3 years? *(4 points)*
2. Alex invests $12,500 in a savings account that pays 2.75% interest compounded quarterly. Write an equation to model the amount of money in the account. How much money will he have in the account after 10 years? *(4 points)*
3. A species of frog on an island initially had a population of about 350 when scientists first began studying it. Since then the population has increased by 5.5% each year. Write an equation to model the frog population. If this trend continues, how many of the frogs in the species will there be after 18 years? *(4 points)*
4. Write a recursive and explicit definition for each geometric sequence. *(2 points each)*
	1. $5, -25, 625, -3125, …$
	2. $2, 4, 8, 16, … $