### Lesson 10 Practice Problems

* 1. Use the base-2 log table (printed in the lesson) to approximate the value of each exponential expression.
		1. $2^{5}$
		2. $2^{3.7}$
		3. $2^{4.25}$
	2. Use the base-2 log table to find or approximate the value of each logarithm.
		1. $log\_{2}4$
		2. $log\_{2}17$
		3. $log\_{2}35$
1. Here is a logarithmic expression: $log\_{2}64$.
	1. How do we say the expression in words?
	2. Explain in your own words what the expression means.
	3. What is the value of this expression?
	4. What is $log\_{10}\left(100\right)$? What about $log\_{100}\left(10\right)$?
	5. What is $log\_{2}\left(4\right)$? What about $log\_{4}\left(2\right)$?
	6. Express $b$ as a power of $a$ if $a^{2}=b$.
2. In order for an investment, which is increasing in value exponentially, to increase by a factor of 5 in 20 years, about what percent does it need to grow each year? Explain how you know.
* (From Unit 4, Lesson 4.)
1. Here is the graph of the amount of a chemical remaining after it was first measured. The chemical decays exponentially.
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* What is the approximate half-life of the chemical? Explain how you know.
* (From Unit 4, Lesson 7.)
1. Find each missing exponent.
	1. $10^{?}=100$
	2. $10^{?}=0.01$
	3. $\left(\frac{1}{10}\right)^{?}=\frac{1}{1,000}$
	4. $2^{?}=\frac{1}{2}$
	5. $\left(\frac{1}{2}\right)^{?}=2$
* (From Unit 4, Lesson 8.)
1. Explain why $log\_{10}1=0$.
* (From Unit 4, Lesson 9.)
1. How are the two equations $10^{2}=100$ and $log\_{10}\left(100\right)=2$ related?
* (From Unit 4, Lesson 9.)



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