### Lesson 11 Practice Problems

1. A line $ℓ$ is defined by the equation $f\left(x\right)=2x−3$.
	1. Line $m$ is the same as line $l$, but shifted 1 unit right. What is an equation for a function $g$ that defines the line $m$?
	2. Line $n$ is the same as line $m$, but shifted 2 units up. What is an equation for a function $h$ that defines the line $n$?
	3. What is the relationship between $f$ and $h$?
* (From Unit 5, Lesson 2.)
1. The functions $g$ and $f$ are related by the equation $g\left(x\right)=f\left(-x\right)+3$. Which sequence of transformations will take the graph of $f$ to the graph of $g$?
* (From Unit 5, Lesson 4.)
1. The function $f$ is linear. Can $f$ be an odd function? Explain how you know
* (From Unit 5, Lesson 5.)
1. *Technology required*. The function $f$ is given by $f\left(x\right)=x^{3}+1$. Kiran says that $f$ is odd because $\left(-x\right)^{3}=-x^{3}$.
	1. Do you agree with Kiran? Explain your reasoning.
	2. Graph $f$, and use the graph to decide whether or not $f$ is an odd function.
* (From Unit 5, Lesson 6.)
1. Here are graphs of three functions $f$, $g$, and $h$ given by $f\left(x\right)=\left(x−1\right)^{2}$, $g\left(x\right)=2\left(x−1\right)^{2}$ and $h\left(x\right)=3\left(x−1\right)^{2}$.
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* Identify which function matches each graph. Explain how you know.
* (From Unit 5, Lesson 8.)
1. *Technology required*. Describe how to transform the graph of $f\left(x\right)=x^{2}$ into the graph of $g\left(x\right)=4\left(3x−1\right)^{2}+5$. Check your response by graphing $f$ and $g$.
* (From Unit 5, Lesson 9.)
1. Let $p$ be the price of a T-shirt, in dollars. A company expects to sell $f\left(p\right)$ T-shirts a day where $f\left(p\right)=50−4p$. Write a function $r$ giving the total revenue received in a day.
* (From Unit 5, Lesson 10.)
1. A population of 80 single-celled organisms is tripling every hour. The population as a function of hours since it is measured, $h$, can be represented by $g\left(h\right)=80⋅3^{h}$.
* Which equation represents the population 10 minutes after it is measured?
	1. $g\left(10\right)=80⋅3^{10}$
	2. $g\left(0.1\right)=80⋅3^{0.1}$
	3. $g\left(\frac{1}{6}\right)=80⋅3^{\frac{1}{6}}$
	4. $g\left(6\right)=80⋅3^{6}$
* (From Unit 4, Lesson 3.)



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