### Lesson 4 Practice Problems

1. The dashed function is the graph of $f$ and the solid function is the graph of $g$. Express $g$ in terms of $f$.
* 
1. The table gives some values of functions $f$ and $g$.
* Which of these equations could be true for all values of $x$?

| * $x$
 | * $f\left(x\right)$
 | * $g\left(x\right)$
 |
| --- | --- | --- |
| * -2
 | * 4
 | * $\frac{1}{4}$
 |
| * -1
 | * 2
 | * $\frac{1}{2}$
 |
| * 0
 | * 1
 | * 1
 |
| * 1
 | * $\frac{1}{2}$
 | * 2
 |
| * 2
 | * $\frac{1}{4}$
 | * 4
 |

* 1. $f\left(x\right)=-g\left(x\right)$
	2. $f\left(x\right)=g\left(−x\right)$
	3. $f\left(x\right)=-g\left(−x\right)$
	4. $f\left(x\right)=g\left(x\right)$
1. Here is the graph of a function $f$.
* 
	1. On the same axis, sketch a graph of $f$ reflected over the $y$-axis and then translate it 3 units up.
	2. Write an equation (in terms of $f$) for a function $g$ that has the graph that you drew.
1. Describe a transformation of the line that contains the two labelled points.
* 
* (From Unit 5, Lesson 1.)
1. The thermostat in an apartment is set to $75^{∘}F$ while the owner is awake and to $60^{∘}F$ while the owner is sleeping. The function $W$ gives the temperature $W\left(x\right)$, in degrees Fahrenheit, in the apartment $x$ hours after midnight. When it is hot outside, the owner changes the settings to be exactly 10 degrees warmer than $W$ to save energy. The function $H$ gives the temperature $H\left(x\right)$, in degrees Fahrenheit, $x$ hours after midnight when it is hot outside.
	1. If $W\left(6.5\right)=75$, then what is the corresponding point on $H$? Use function notation to describe the point on $H$.
	2. If $W\left(2\right)=60$, then what is the corresponding point on $H$? Use function notation to describe the point on $H$.
	3. Write an expression for $H$ in terms of $W$.
* (From Unit 5, Lesson 2.)
1. A ball is hit in the air. Its height $h$, in feet, $t$ seconds after it is hit is modeled by the equation $h=4+50t−32t^{2}$. Which equation models the height of a ball following the same path but is hit 2 seconds *after* the first ball?
	1. $h=6+50t−32t^{2}$
	2. $h=2+50t−32t^{2}$
	3. $h=4+50\left(t+2\right)−32\left(t+2\right)^{2}$
	4. $h=4+50\left(t−2\right)−32\left(t−2\right)^{2}$
* (From Unit 5, Lesson 3.)



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