### Lesson 8 Practice Problems

1. In each pair of graphs shown here, the values of function $g$ are the values of function $f$ multiplied by a scale factor. Express $g$ in terms of $f$ using function notation.
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1. Here is the graph of $y=f\left(x\right)$ for a cubic function $f$.
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	1. Will scaling the outputs of $f$ change the $x$-intercepts of the graph? Explain how you know.
	2. Will scaling the outputs of $f$ change the $y$-intercept of the graph? Explain how you know.
1. The function $f$ is given by $f\left(x\right)=2^{x}$, while the function $g$ is given by $g\left(x\right)=4⋅2^{x}$. Kiran says that the graph of $g$ is a vertical scaling of the graph of $f$. Mai says that the graph of $g$ is a horizontal shift of the graph of $f$. Do you agree with either of them? Explain your reasoning.
2. The dashed function is the graph of $f$ and the solid function is the graph of $g$. Express $g$ in terms of $f$.
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* (From Unit 5, Lesson 4.)
1. The table shows some values for an odd function $f$.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| * $x$
 | * -4
 | * -3
 | * -2
 | * -1
 | * 0
 | * 1
 | * 2
 | * 3
 | * 4
 |
| * $f\left(x\right)$
 | * -3
 |  | * 5
 | *
 | * 0
 | * 19
 | *
 | * -11
 | *
 |

* Complete the table.
* (From Unit 5, Lesson 5.)
1. Here is a graph of $f\left(x\right)=x^{3}$ and a graph of $g$, which is a transformation of $f$. Write an equation for the function $g$.
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* (From Unit 5, Lesson 7.)



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