### Lesson 14 Practice Problems

1. The absolute value function can be defined using piecewise notation.
* $A\left(x\right)=\left\{\begin{matrix}x,&x\geq 0\\-x,&x<0\end{matrix}\right.$
* Use this notation to find the following values:
	1. $A\left(10\right)$
	2. $A\left(0\right)$
	3. $A\left(-3\right)$
	4. $A\left(3.14159\right)$
	5. $A\left(x\right)=7$
	6. $A\left(x\right)=-5$
1. Here are four equations of absolute value functions and three coordinate pairs. Each coordinate pair represents the vertex of the graph of an absolute value function.
* Match the equation of each function with the coordinates of the vertex of its graph. The vertex coordinates of the graph of one equation are not shown.
	1. $p\left(x\right)=\left|x−9\right|$
	2. $q\left(x\right)=\left|x\right|+9$
	3. $r\left(x\right)=\left|x+9\right|$
	4. $t\left(x\right)=\left|x\right|−9$
	5. $\left(-9,0\right)$
	6. $\left(9,0\right)$
	7. $\left(0,-9\right)$
1. Function $G$ is defined by the equation $G\left(x\right)=\left|x\right|$.
* Function $R$ is defined by the equation $R\left(x\right)=\left|x\right|+2$.
* Describe how the graph of function $R$ relates to the graph of $G$, or sketch the graphs of the two functions to show their relationship.
1. Here is the graph of a function.
* Select the equation for the function represented by the graph.
* 
	1. $y=\left|x\right|−5$
	2. $y=\left|x\right|+5$
	3. $y=\left|x−5\right|$
	4. $y=\left|x+5\right|$
1. The temperature was recorded at several times during the day. Function $T$ gives the temperature in degrees Fahrenheit, $n$ hours since midnight.
* Here is a graph for this function.
	1. Pick two consecutive points and connect them with a line segment. Estimate the slope of that line. Explain what that estimated value means in this situation.
	+
	+ 
	1. Pick two non-consecutive points and connect them with a line segment. Estimate the slope of that line. Explain what that estimated value means in this situation.
* (From Unit 4, Lesson 7.)
1. A tennis ball is dropped from an initial height of 30 feet. It bounces 5 times, with each bounce height being about $\frac{2}{3}$ of the height of the previous bounce.
* Sketch a graph that models the height of the ball over time. Be sure to label the axes.
* 
* (From Unit 4, Lesson 8.)
1. Here are two graphs representing functions $f$ and $g$.
* Identify at least two values of  $x$ at which the inequality $g\left(x\right)>f\left(x\right)$ is true.
* 
* (From Unit 4, Lesson 9.)



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