## Lesson 17: Interpreting Function Parts in Situations

* Let’s pick apart functions

### 17.1: Math Talk: Function Evaluation

Mentally find the value of $x$ for the given function value using the function: $f\left(x\right)=3\left(x−2\right)$

$f\left(x\right)=9$

$f\left(x\right)=210$

$f\left(x\right)=10$

$f\left(x\right)=0$

### 17.2: A Long Car Trip

On a long car trip, the distance on the odometer (in miles) is a function of time (in hours after the trip begins) given by the equation $d\left(t\right)=34t+45,​233$.

1. What is the rate of change for the function? What does it mean in this situation?
2. What is the value of $d\left(0\right)$? What does it mean in this situation?
3. What is the value of $d\left(-1\right)$? What does it mean in this situation?
4. When is $d\left(t\right)=45,​800$?
5. Do each of the values make sense? Explain your reasoning.

### 17.3: A Warehouse and Highway



1. A warehouse in a factory initially holds 2,385 items and receives all of the items made in production throughout a day. During a particular day, the factory produces 150 items per hour to put into the warehouse. Write a function, $f$, to represent the number of items in the warehouse at time $t$ after production begins for the day.
	1. What are the units for $t$?
	2. What is the domain of the function? Explain your reasoning.
	3. What is the range of the function? Explain your reasoning.
	4. What is the value of $t$ when $f\left(t\right)=3,​000$? What does that mean in this situation?
2. During a focused effort on building new infrastructure for 3 years, a company can build 0.8 miles of highway per day. The company has already built 12 miles of highway before the focused effort. Write a function, $g$, to represent the length of highway built by the company as a function of $t$ during the focused effort.
	1. What are the units for $g\left(t\right)$?
	2. What is the domain of the function? Explain your reasoning.
	3. What is the range of the function? Explain your reasoning.
	4. What is the value of $t$ when $g\left(t\right)=400$? What does that mean in this situation?



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