

# Project One Example

## 1 A Word Problem Involving Scientific Notation

Researchers are investigating how their drug disseminates in the human body. They use a dye and a computer program to estimate how many cells have received the medicine. There are  $2.2 \times 10^{12}$  cells that are studied, but only  $1.1 \times 10^{12}$  cells have the medicine. How many cells did not receive the medicine?

**ANSWER:**  $2.2 \times 10^{12} - 1.1 \times 10^{12} = 1.1 \times 10^{12}$

## 2 A Word Problem Involving a Linear Function

Jeffrey heard at the beginning of his semester that his instructor accepted late homework. "Great!", thought Jeffrey. "I can play World of Warcraft/Minecraft/Fortnite/(insert latest video game craze here)!" Jeffrey waited until the last week of the semester to complete homework assignments.

Jeffrey's grade suffered because of his negligence. He now needs to complete every homework assignment to pass! Jeffrey counts up the number of problems and finds out there are 500 problems that need to be completed. If Jeffrey works hard, he can complete 20 problems per hour. Write a function that takes the number of hours worked,  $h$ , and outputs the number of problems left to complete,  $P(h)$ .

**ANSWER:**  $P(h) = 500 - 20h$

### 3 Solve Rational Equations

Solve for  $x$ :

$$\frac{x}{x-1} - \frac{2}{x} = \frac{1}{x-1}$$

**ANSWER:** ( $x = 1$  must be excluded)  $x = 2$