

**PROBLEM-OF-THE-DAY: ALGEBRA 1****WEEK:** October 2 to October 5**DAY:** Wednesday

**RISD Objective:** Provided the equation of a function, students will evaluate the function for a particular value of  $x$ . Or students will determine the value of  $x$  if given the function value.

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**PROBLEM #31**

Jordan already has downloaded 678 songs onto his computer. He downloads an average of 21 songs a week. A function that would describe the number of songs on his computer,  $S(w)$ , for a number of weeks,  $w$ , would be given by:

$$S(w) = 21w + 678.$$

- a) How many songs will Jordan have on his computer in 16 weeks? Show your work.
  
- b) In how many weeks will Jordan have 1665 songs on his computer? Show and explain your work.

## MODEL SOLUTION #31

a) Since the function is  $S(w) = 21w + 678$ , to find the number of songs after 16 weeks, I need to substitute 16 in for  $w$ .

$$\begin{aligned} S(16) &= 21(16) + 678 \\ &= 336 + 678 \\ &= 1014 \end{aligned}$$

So, Jordan would have 1014 songs on his computer after 16 weeks.

b) In this case we know the number of songs, which is 1665, so we will substitute this in for the function and solve for  $w$ .

$$1665 = 21w + 678$$

$$987 = 21w$$

$$987/21 = w$$

$$47 = w$$

So, Jordan will have 1665 songs in 47 weeks.