

**PROBLEM-OF-THE-DAY: ALGEBRA 1**

**WEEK:** September 4 to September 7

**DAY:** Wednesday

**RISD Objective:** Provided an algebraic expression with multiple operations (including absolute value operations), students will be able to evaluate that expression when given numerical values for the variables.

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**PROBLEM #12**

Mr. Smith hired Billy to mow his lawn within two days of the 15<sup>th</sup> day of each month.  $|d - 15| \leq 2$  describes the days of the month

Billy can mow Mr. Smith's lawn according to their agreement. The variable,  $d$ , is a day of the month (e.g., for July 4<sup>th</sup> or August 4<sup>th</sup>,  $d=4$ ). Find which days of the month Billy can mow Mr. Smith's lawn by completing the columns of the table below.

Date	$d$	$ d - 15  \leq 2$	Simplify	Simplified	Valid Date?
July 11 <sup>th</sup>	11	$ 11 - 15  \leq 2$	$ -4  \leq 2$	$4 \leq 2$	NO
July 12 <sup>th</sup>					
July 13 <sup>th</sup>					
July 14 <sup>th</sup>					
July 15 <sup>th</sup>					
July 16 <sup>th</sup>					
July 17 <sup>th</sup>					
July 18 <sup>th</sup>					
July 19 <sup>th</sup>					

## MODEL SOLUTION #12

Date	d	$ d - 15  \leq 2$	Simplify	Simplified	Valid Date?
July 11 <sup>th</sup>	11	$ 11 - 15  \leq 2$	$ -4  \leq 2$	$4 \leq 2$	NO
July 12 <sup>th</sup>	12	$ 12 - 15  \leq 2$	$ -3  \leq 2$	$3 \leq 2$	NO
July 13 <sup>th</sup>	13	$ 13 - 15  \leq 2$	$ -2  \leq 2$	$2 \leq 2$	YES
July 14 <sup>th</sup>	14	$ 14 - 15  \leq 2$	$ -1  \leq 2$	$1 \leq 2$	YES
July 15 <sup>th</sup>	15	$ 15 - 15  \leq 2$	$ 0  \leq 2$	$0 \leq 2$	YES
July 16 <sup>th</sup>	16	$ 16 - 15  \leq 2$	$ 1  \leq 2$	$1 \leq 2$	YES
July 17 <sup>th</sup>	17	$ 17 - 15  \leq 2$	$ 2  \leq 2$	$2 \leq 2$	YES
July 18 <sup>th</sup>	18	$ 18 - 15  \leq 2$	$ 3  \leq 2$	$3 \leq 2$	NO
July 19 <sup>th</sup>	19	$ 19 - 15  \leq 2$	$ 4  \leq 2$	$4 \leq 2$	NO

So, Billy can mow the lawn on any day from the 13<sup>th</sup> day of the month to the 17<sup>th</sup> day of the month.