***Evolution of an Item***

**Mathematics**

**Sample 1**

To rent a jetski at the shore, a customer must pay a $100 deposit on the jetski in addition to the $5 rental fee per hour. When the jetski is returned without damage, the customer gets half of the deposit back.

Which equation represents the total cost *(c)* over time *(t)*for jetskies returned without damage?

1. *c*=5*t*+5O
2. *c*=5*t*+1OO
3. *c*=50*t*+5
4. *c*=lOO*t*+5

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| --- |
| **Revised** |
|  | **Look at the sign below.**

|  |
| --- |
| ROWBOAT RENTALS$5.00 per hourPLUS$100.00 deposit*Deposit will be refunded ifboat is returned undamaged.* |

**Which equation below represents returning a rowboat undamaged? Let *c* be the total cost in dollars and *t* be the time in hours.**1. *c*=5*t*+l00
2. *c*=500*t*
3. *c*=lOO*t*+5
4. *c*=5*t* \*
 |

**Reason**

The term “jetski” was changed in this item for several reasons. Not all students will know what a “jetski” is, and some may become confused. “Jetski” is a licensed name for a commercially produced product the usage of which may require expensive permissions. The rental rate of $5 per hour is not realistic for a jetski. The sign graphic was added to decrease wordiness. Language was simplified to reduce wordiness. Return of only half of a deposit is not common, so a more realistic refund of the entire deposit was incorporated. Distractors were revised to match the revisions in the stem and were placed in a staggered pattern according to length.

**Sample 2**

**Original**

One hundred students at Heritage High School were sampled and asked their preference for a school mascot. The table below displays the results of the poll.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mascot | Tiger | Lion | Dolphin | Hawk |
| Number of Votes | 19 | 22 | 17 | 42 |

The total population of the school is 1550. Based on the survey, how many students at Heritage High School will vote for the mascot to be a lion?

1. 341
2. 22
3. 651
4. 42

|  |
| --- |
| **Revised** |
|  | **A random sample of 100 students at Heritage High School voted on a school mascot. The table below shows the results of the vote.**MASCOT VOTES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mascot** | **Tiger** | **Lion** | **Dolphin** | **Hawk** |
| **Number of Votes** | 19 | 22 | 17 | 42 |

**The total population of the school is 1,550. Predict how many students at Heritage High School want the mascot to be the lion.**1. 22
2. 42
3. 341 \*
4. 651
 |

**Reason**

The language in this item was simplified to avoid wordliness. Terms (such as “vote”) were standardized and concepts were simplified to avoid confusion. Distractors were stacked in numerical order.