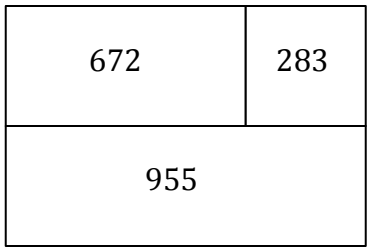
There were 672 box tops collected by the third grade and 283 box tops collected by the fourth grade. How many more box tops were collected by the third grade? Which of the responses below are possible solutions?

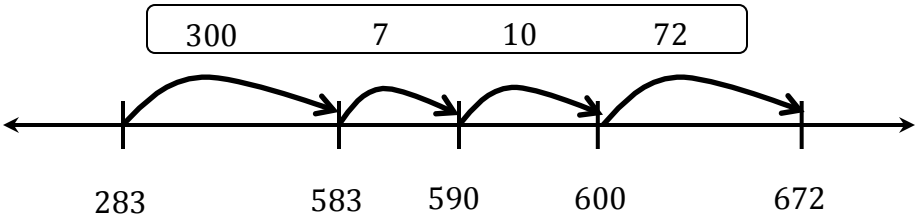
(A)

$$\begin{array}{r} 672 \\ +\ 283 \\ \hline 955 \end{array}$$

(B)



(C)



(D)

$$\begin{array}{rl} 672 = & 599+1+72 \\ -\ 283 = & -\ 283 \\ \hline = & 316+1+72 \\ = & 389 \end{array}$$

(E)

$$\begin{array}{r} 672 \\ -\ 283 \\ \hline 389 \end{array}$$

Scoring:
2 points: If selected C, D, and E
1 point: Selected two of the three correct responses (C, D, E)
0 points: Selected A or B

Key and Distractor Analysis:
A. Students may add instead of subtract if they are just looking for key words.
B. This bar model represents an addition problem correctly, but it does not model the given problem.
C. Key. Correctly shows one way to model the difference on an open number line.
D. Key. Correctly shows one way to decompose the minuend before subtracting.
E. Key. Correctly shows a commonly used vertical algorithm for subtraction.

Number and Operations in Base Ten — 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.[4]

2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

[4] A range of algorithms may be used.