Inside or Outside?

After sorting, choose two items and explain how you knew.

S.DA.4 "Analyze associations between two variables. Create two-way tables for bivariate categorical data and analyze for possible associations between the two categories using marginal, joint, and conditional frequencies..."

NAME _____ DATE _____

WITHIN RANGE

The marked input falls between the smallest and largest inputs used to build the model, including the endpoints. A prediction here is called interpolation.

A model uses study times from 20 to 40 minutes. The marked input is 30 minutes, which is within that range.



BEYOND RANGE

The marked input falls below the smallest or above the largest input used to build the model. A prediction here is called extrapolation, and the pattern may not continue outside the data range.

A model uses study times from 20 to 40 minutes. The marked input is 70 minutes, which is beyond that range.



1 SORT

8 items

A model was built using trip distances from 4 to 12 miles; for each marked distance, circle WITHIN or BEYOND.

1.



Figure 1

WITHIN **BEYOND**

2.



Figure 2

WITHIN **BEYOND**

3.



Figure 3

WITHIN **BEYOND**

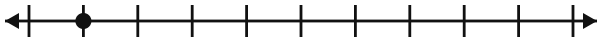
4. 

Figure 4

WITHIN **BEYOND**

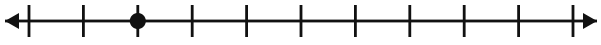
5. 

Figure 5

WITHIN **BEYOND**

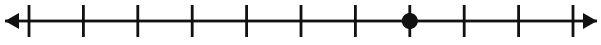
6. 

Figure 6

WITHIN **BEYOND**

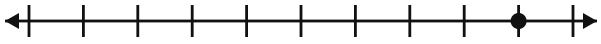
7. 

Figure 7

WITHIN **BEYOND**

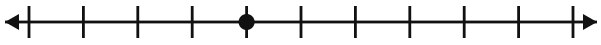
8. 

Figure 8

WITHIN **BEYOND**

2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write one new trip distance from 4 to 12 miles and one outside that range; label each WITHIN or BEYOND.

WITHIN _____

BEYOND _____

CHALLENGE

The model predicts trips of 13 miles and 19 miles. Which prediction would you trust less? Explain why.

ANSWER KEY # Inside or Outside?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (numberline)	**BEYOND**	16 miles is greater than 12 miles.
2	Figure 2 (numberline)	**WITHIN**	6 miles is between 4 and 12 miles.
3	Figure 3 (numberline)	**WITHIN**	12 miles is an endpoint of the data range.
4	Figure 4 (numberline)	**BEYOND**	2 miles is less than 4 miles.
5	Figure 5 (numberline)	**WITHIN**	4 miles is an endpoint of the data range.
6	Figure 6 (numberline)	**BEYOND**	14 miles is greater than 12 miles.
7	Figure 7 (numberline)	**BEYOND**	18 miles is greater than 12 miles.
8	Figure 8 (numberline)	**WITHIN**	8 miles is between 4 and 12 miles.

PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **WITHIN**: 10 miles, WITHIN
- **BEYOND**: 20 miles, BEYOND

Challenge: I would trust the 19-mile prediction less because it is farther beyond the 4-to-12-mile data range. The pattern may not continue that far.

For Part 2, explanations should compare each marked distance with the 4-to-12-mile range. Both endpoints count as WITHIN.