

Minimal Sparse Rulers Exploration

Part I

Construct a ruler that totals up to six units of length. The ruler must be able to measure all the lengths between 0 and 6.

Now, pretend that each notch that is built in the ruler will cost \$1,000,000. Construct the most cost efficient ruler.

Discussion Notes:

Part II

Draw the ruler of length six that was the most cost effective. IN other words which ruler from the class had the minimal number of notches?

Construct a ruler of length 7 with the maximum number of notches included.

Construct a ruler of length 7 with the minimum number of notches needed.

Discuss with your group how to find a maximum and minimum number of notches for a given length.

Part III

Draw a different ruler of length 7 with the minimal number of notches. Make the notches in this new ruler be different from the one you found in Part II.

There are twelve possible rulers of length 7 that can be made with the minimal number of notches. Find three more rulers of length seven.

Now, discuss the minimal number of notches needed for a ruler of length 8. Construct three rulers of length 8 that have the same number of notches.

Part IV

In your own words, write a definition of a minimally notched ruler.