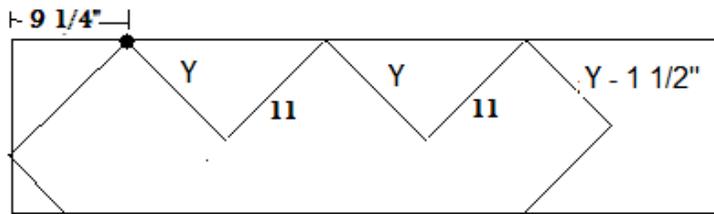


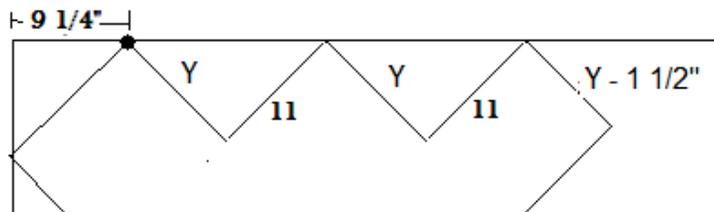
Step Building Worksheet

You will be working with a partner to create a sketch of a set of stairs on butcher paper. You will be sharing your data with the other partner groups in the classroom.

1. Mark a stringer on a piece of butcher paper (1' wide X 4' long) using a carpenter's square. Normally, the stringer is cut out of a 2"x12" board. Today, you will initially use butcher paper for the stringer. The marked stringer should look like this: (note what Y = at the top of the page) There should be 2 steps plus the top landing. If you mess up, you will need to make do. Check this measurement with the teacher before cutting the stringer. Drawing is not to scale.



2. Cut the stringer with scissors. Normally you would use the first stringer as the pattern for the second one. But for this activity, the other pair of students will try to match your stringer without tracing the first stringer. Measure twice, cut once.
3. Determine the length of the 2 x 12 (butcher paper) needed if your paper had not been pre-cut. Hint: How many hypotenuses do you need?



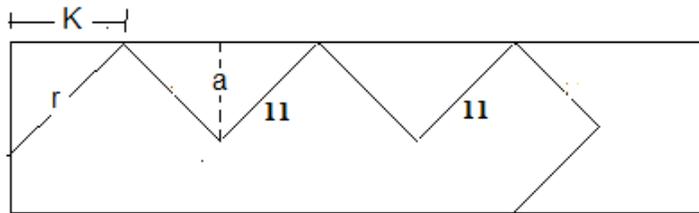
4. Calculate the slope of your steps. Calculate the slope of the steps of 4 other groups. Record the slopes here:

Group # _____ Slope _____

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5. Looking at your steps, why do you need the bottom rise (Y) to be 1 1/2" shorter than the other rises?

6. Using the drawing below, what is the geometric term for "a" "r" needs to be 11 inches. Why? Using your steps, measure the distance "a" and record here _____ Find the value of "K" mathematically (it may not be 9 1/4" as originally given).



7. How many steps would you need for the top of the steps to reach a height of 48" assuming each rise must be equal and be the same as your Y value plus or minus 1/2"?

8. What is the length of the 2 x 12 needed for 1 stringer if you needed the top of the steps to be at a height of 48". Use the rise you used in #7.
