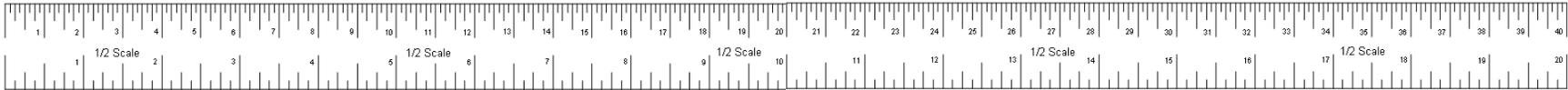


# Instructions for Creating Scale Rulers and for Scaling Patterns



## Introduction

You can use these pages to create scale rulers for working with patterns.

One use of these rulers is to simplify the math required to draft patterns from measurements. For example: To draw a reference line on a pattern that shows the width of the shoulders, you need to determine the distance from the center front line to the point of the shoulder. This distance is half the shoulder width measurement, say  $15\frac{1}{2}$ ". With one of these scale rulers, instead of dividing that measurement, you can simply select the 1/2 scale ruler, find  $15\frac{1}{2}$ , then make a mark on the pattern.

Another use of these rulers is to scale patterns. You can try patternmaking techniques using 1/4 scale or 1/5 scale patterns. These small scale patterns will fit on a sheet of letterhead paper. Once you are happy with the design, you can then make a full size pattern (see the instructions on pages 2 & 3).

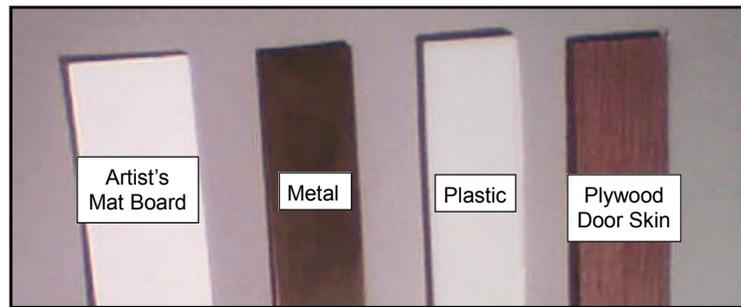
## Materials

To make these scale rulers you will need the following supplies:

Full Sheet 8-12" x 11" Label Paper (Avery Paper #8165)  
(or letterhead paper and glue such as rubber cement.)

2" Clear Packing Tape (for a protect cover for the ruler).

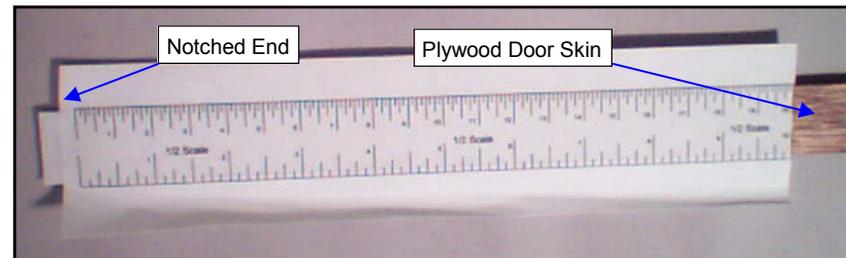
1" x 20-1/2" x 1/8" stiffener board, which can be made from mat board, plastic, metal, or plywood door skin as shown below.



## Instructions for Making the Rulers

These rulers have two sides. The first side of one ruler is the 1/2 scale and the second side of this ruler is the 1/4 scale. For the other ruler, the first side is the 1/3 scale and the second side is the 1/5 scale.

1. Cut the stiffener board to 1" x 20-1/2".
2. Print the pages for the scale rulers on label paper. See the instructions for accurately printing PDF files on the next page. (For rulers in inches, print pages 5 & 6. For rulers in centimeters, print pages 7 & 8.)
3. Cut the label paper along the blue lines.
4. Cut the label paper along the 20" or 25cm vertical mark.
5. Attach the first side of the scale ruler to the stiffener board. The horizontal lines of the ruler should lap over both edges of the stiffener board.
6. Notch the ends of the label paper as shown in the illustration below.
7. Fold over the ends of the paper to the back of the stiffener.
8. Fold over the sides of the paper to wrap completely around the stiffener board.
9. Put clear packing tape over the entire scale ruler.
10. Attach the second scale ruler to the opposite side of the stiffener board.
11. Cover the second scale ruler with packing tape then cut off the excess tape from the edges.



## Printing PDF Files

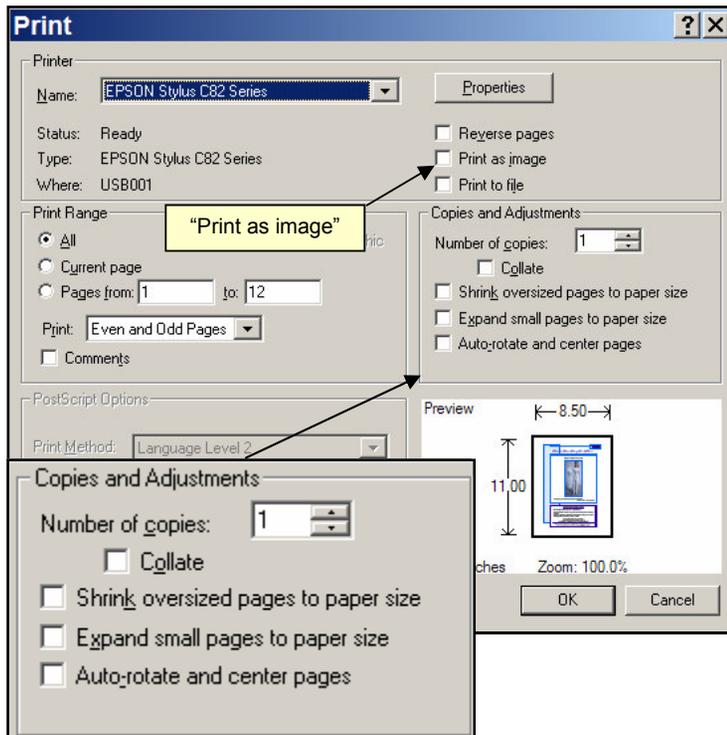
The Adobe Acrobat print function can be set to shrink or expand pages. This will cause the rulers to be printed incorrectly. The phrasing of this function depends on the version of Acrobat that you are using. Two versions are shown below.

Use a metal ruler to verify the rulers are the correct size along the full size inch and/or centimeter scale.

Another problem you may encounter is that the text in the instructions prints additional characters. These characters do not appear when the pages are displayed. When this happens, select the “Print as image” function.

### Acrobat Reader 5.0

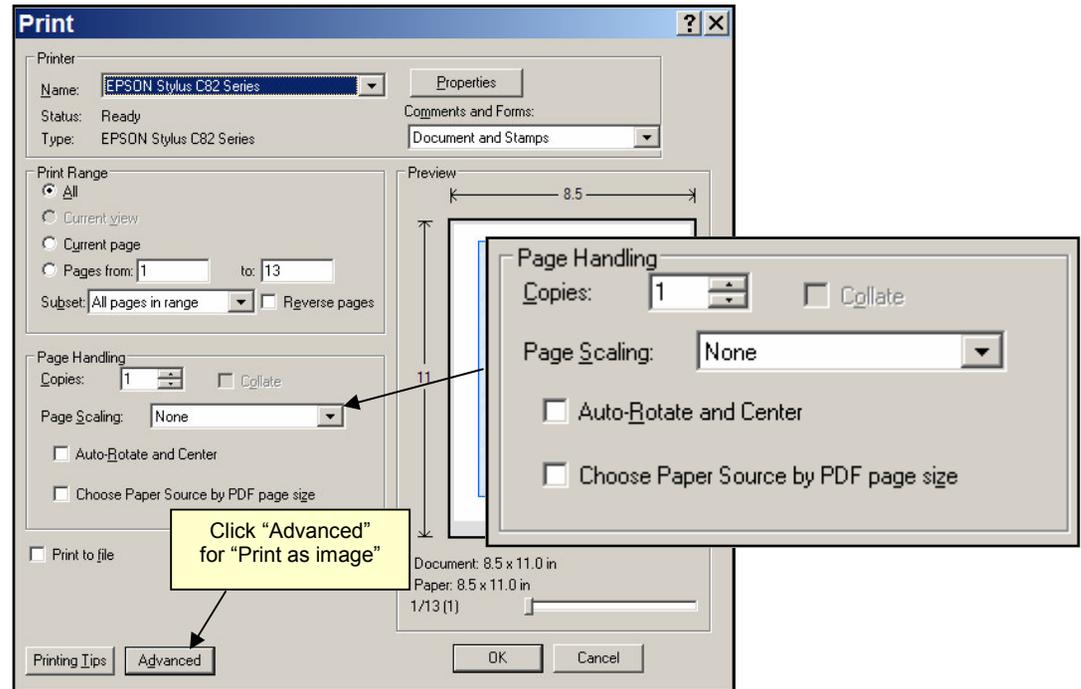
In the “Copies and Adjustments” section, uncheck the boxes that say “Shrink oversized pages” and “Expand small pages.”



### Acrobat Reader 6.0 & 7.0

In the “Page Handling” section, set “Page Scaling” to “None.”

To access the “Print as image” checkbox, click the “Advanced” button.

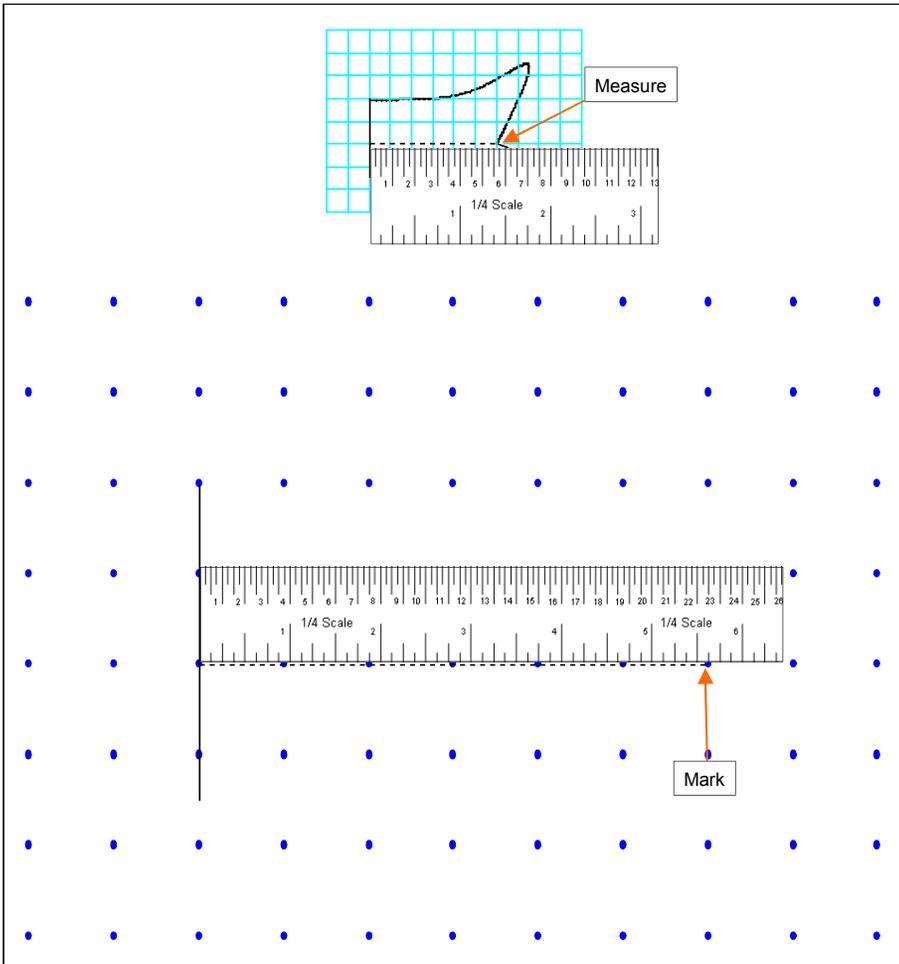


## Scaling Patterns using the Grid System

The two descriptions below show how to scale patterns up and down using the grid system. For these examples, the small scale patterns are shown on 1/4" graph paper. The full size patterns are shown on the pattern marking paper that has dots every square inch. Use the grid as a guide to draw the pattern.

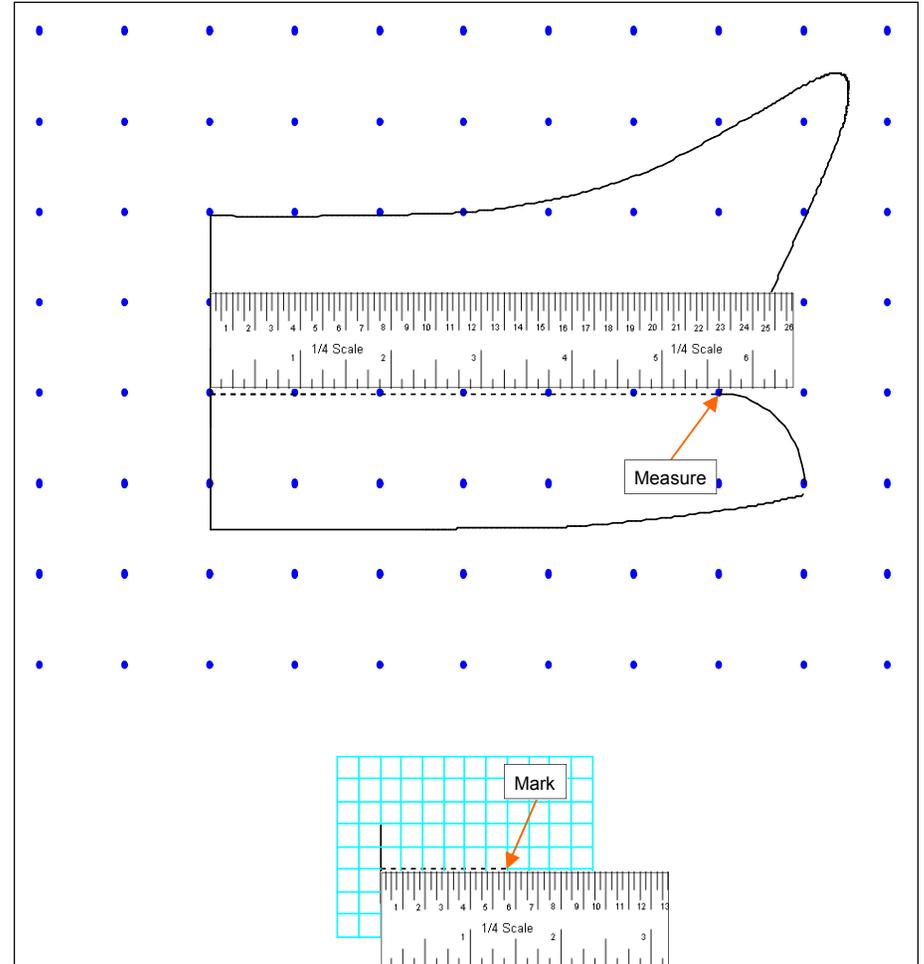
### Scaling Up

1. Using the scale on the top of the ruler, measure the small scale pattern.
2. Using the inches on the bottom of the ruler, mark the length.



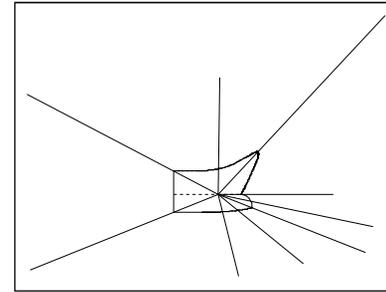
### Scaling Down

1. Using the inches on the bottom of the ruler, measure the full size pattern.
2. Using the scale on the top of the ruler, mark the length.



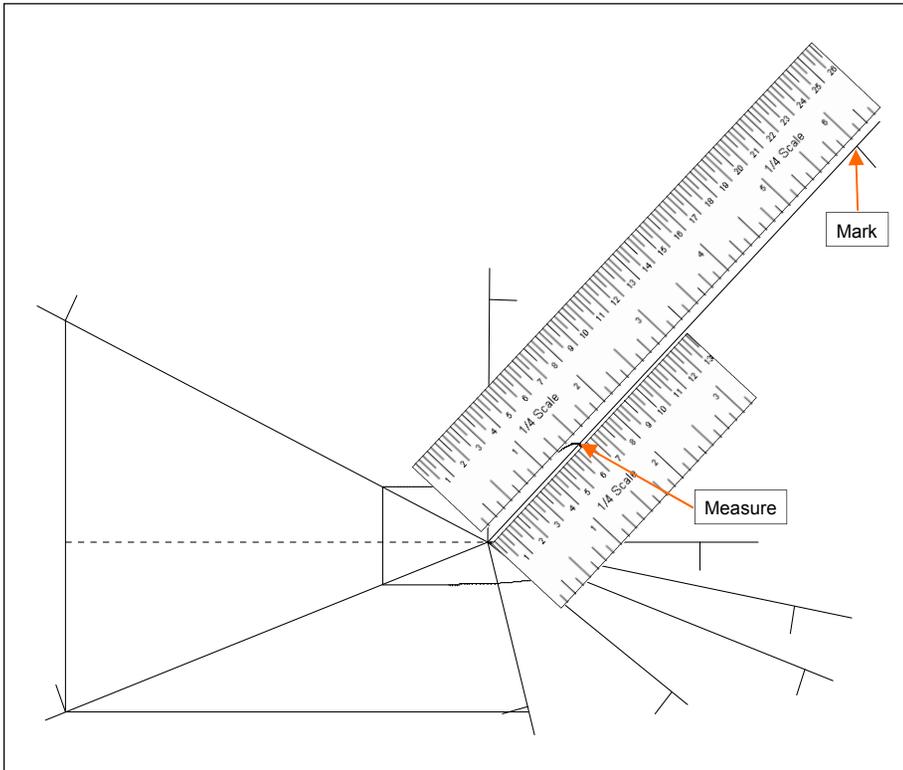
## Scaling Patterns using the Radial System

The two descriptions below show how to scale patterns up and down using lines radiating from a central point. To use this system, find a point in the center of the pattern and draw lines radiating out from this point to intersect with key points on the pattern. Use as many radiating lines as necessary to effectively scale the pattern. Once the marks are drawn, connect the lines to create the pattern.



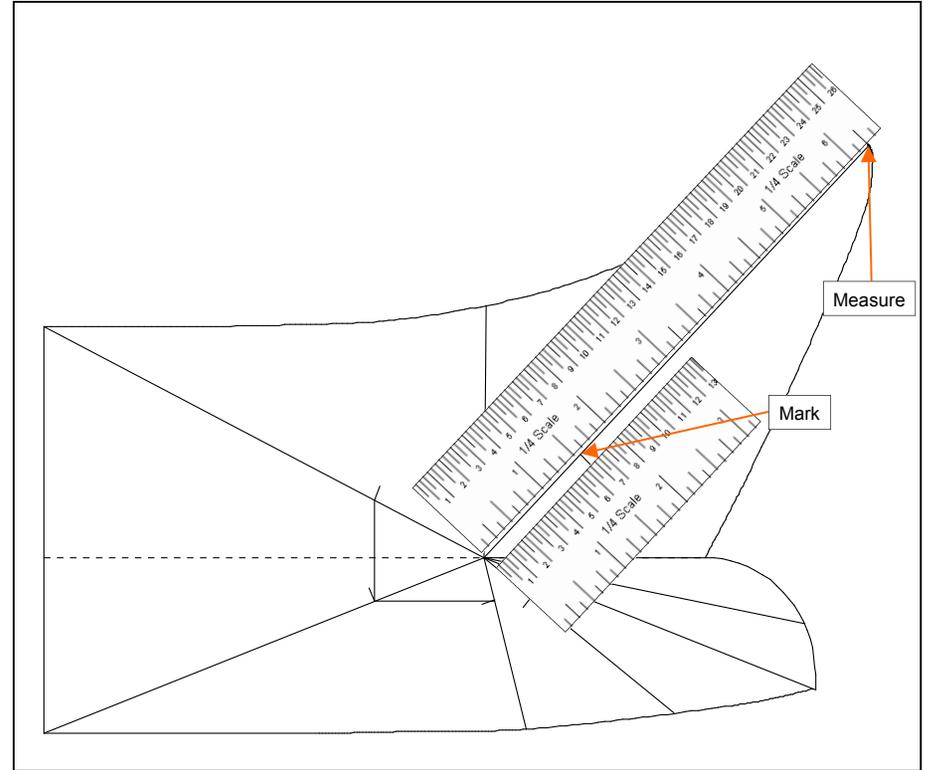
### Scaling Up

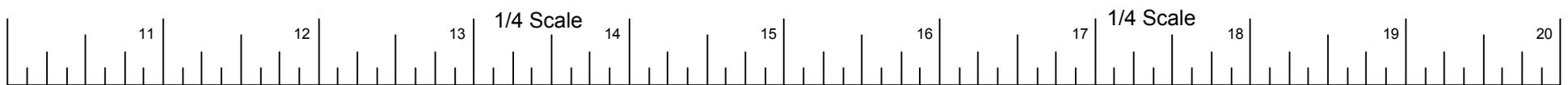
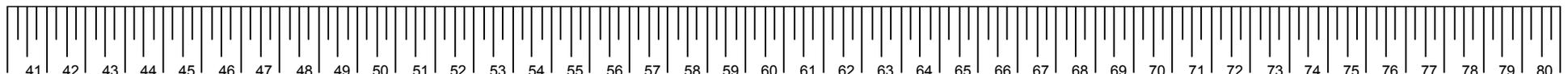
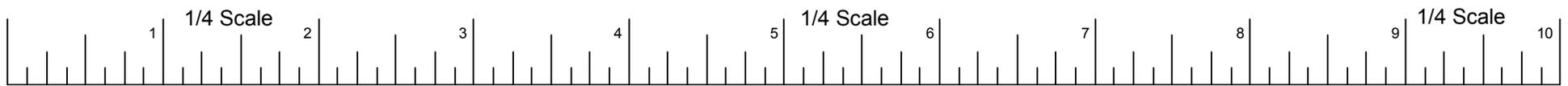
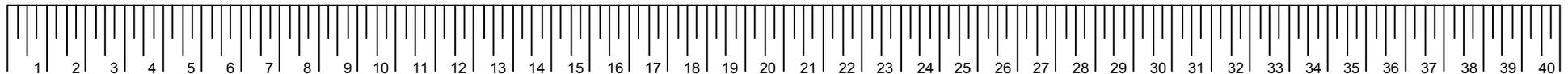
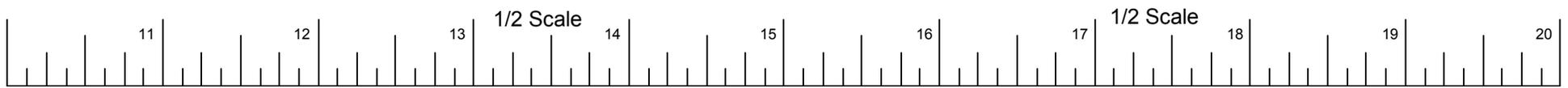
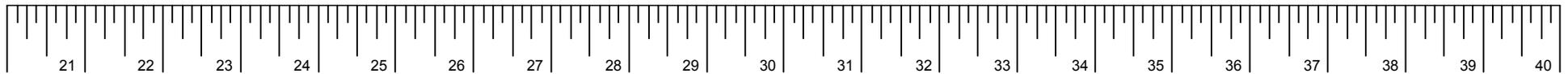
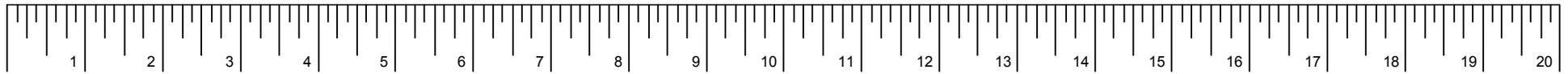
1. Using the scale on the top of the ruler, measure the small scale pattern.
2. Using the inches on the bottom of the ruler, mark the length.

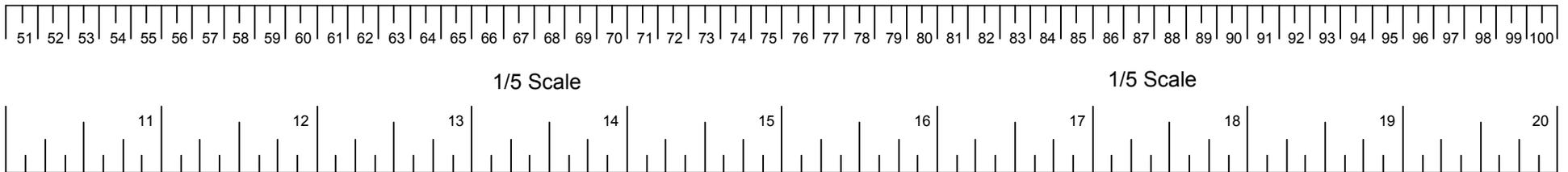
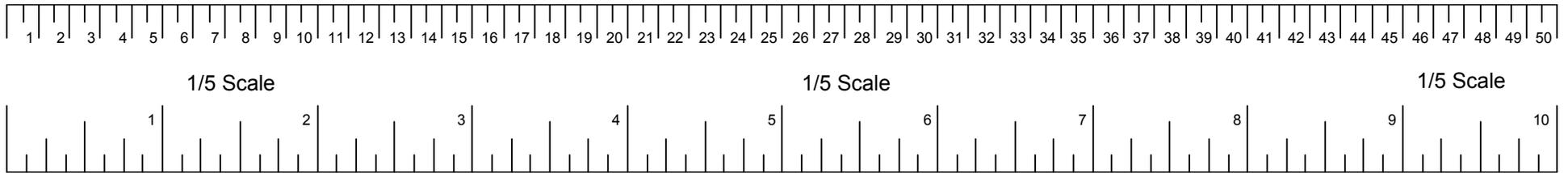
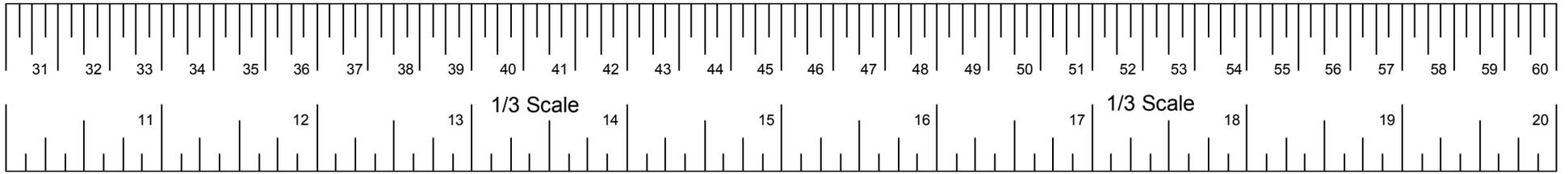
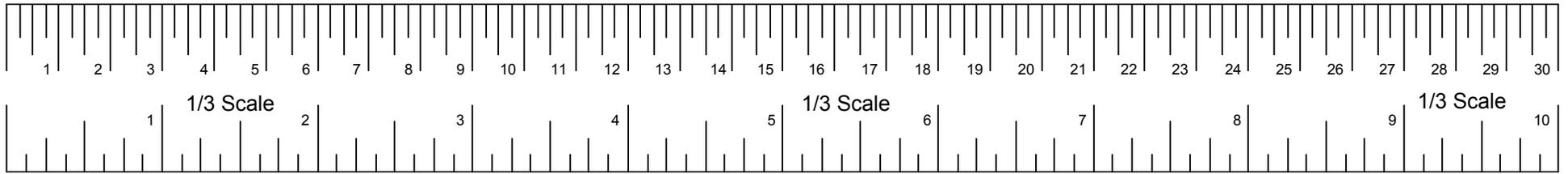


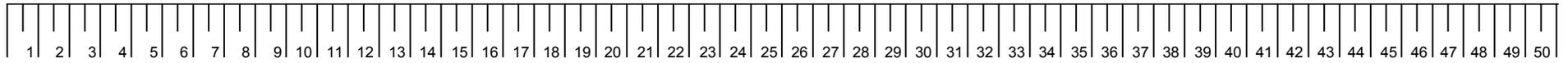
### Scaling Down

1. Using the inches on the bottom of the ruler, measure the full size pattern.
2. Using the scale on the top of the ruler, mark the length.





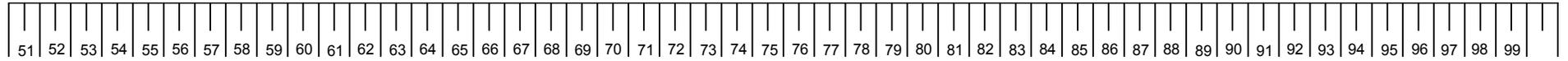




1/2 Scale

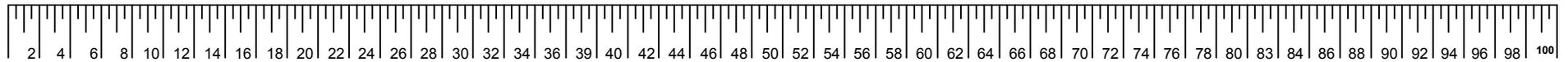
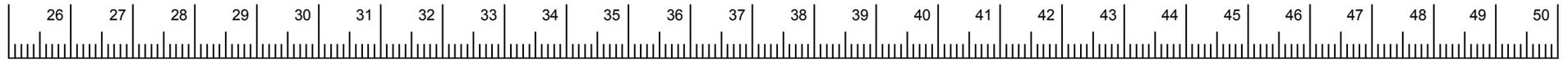
1/2 Scale

1/2 Scale



1/2 Scale

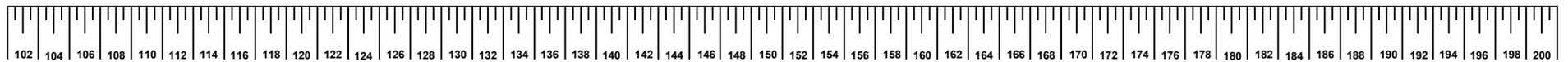
1/2 Scale



1/4 Scale

1/4 Scale

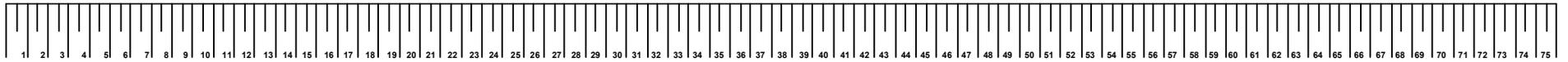
1/4 Scale



1/4 Scale

1/4 Scale

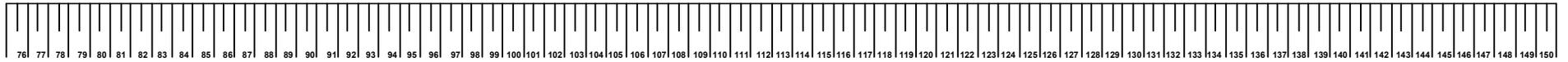
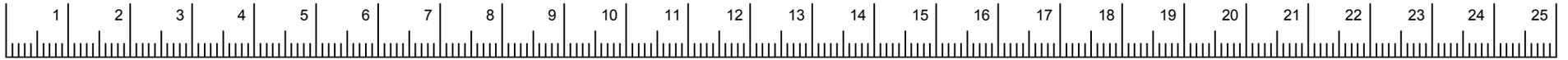




1/3 Scale

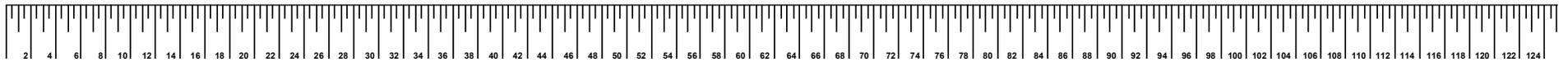
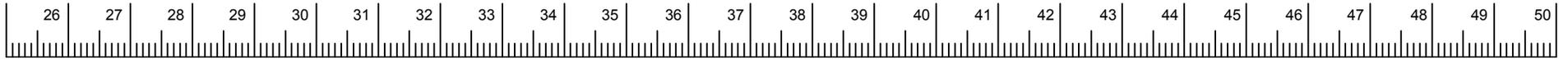
1/3 Scale

1/3 Scale



1/3 Scale

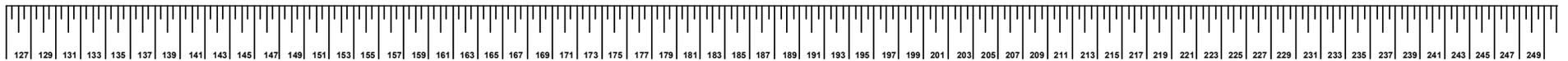
1/3 Scale



1/5 Scale

1/5 Scale

1/5 Scale



1/5 Scale

1/5 Scale

