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## EC73-455 Sewing Women's Pants and Shorts

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EC 73-455

# SEWING WOMEN'S PANTS and SHORTS

Extension work in "Agriculture, Home Economics and subjects relating thereto," The Cooperative Extension Service, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, Cooperating with the Counties and the U.S. Department of Agriculture  
Leo E. Lucas, Director



# PANTS MEASUREMENT CHART

|   | Your measurement                            | Ease allowance*                                      | Amount needed                | Pattern measurement | Adjustment (+ or -) |
|---|---|--|------------------------------|---------------------|---------------------|
| 1. Waist                                |   | 1/2" to 1"   |                              |                     |                     |
| 2. Crotch length (seated)               |   | 1/2" for 35"<br>3/4" for 35"<br>for 38"<br>1" to 38" |                              |                     |                     |
| 3. high hip ( _____ inches below waist) |   | 1/2" to 1"   |                              |                     |                     |
| 4. hip ( _____ inches below waist)      |   | 1" to 2"   |                              |                     |                     |
| 5. thigh ( _____ inches below waist)    |   | 1" to 2"   |                              |                     |                     |
| 6. Knee ( _____ inches below waist)     |   | 1" to 2"   |                              |                     |                     |
| 7. Calf ( _____ inches below waist)     |   | 1" to 2"   |                              |                     |                     |
| 8. side length (waist to floor)         |   |  | desired length + hem         |                     |                     |
| 9. instep                               |   | hem width must be at least equal to this measurement | width of pant leg around hem |                     |                     |
| 10. crotch circumference (standing)     | front: _____<br>back: _____<br>Total: _____ | 1" to 2"<br>total measure                            |                              |                     |                     |

\*Use the smaller ease allowance for a tighter fit. Ease allowances may be reduced by half when using stretch fabrics. Prevailing styles will influence additional ease for measurements from thigh to ankle and for length.



# SEWING WOMEN'S PANTS and SHORTS

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Pants are found in almost every woman's wardrobe. There are all sorts of pants—slacks, jeans, shorts—all styled and named by fashion. Pants are considered appropriate dress for many occasions and activities.

Sewing pants is not difficult but the finished garment is sometimes a disappointment because of poor fit. Pants don't have to bag in the seat, bind at the knees or sag at the waist. With careful attention to measurements and fit, any woman can sew pants that feel comfortable and look neat when worn.

Pants patterns are purchased according to waist measurement if waist and hips are near average proportion. Check the measurement chart on the pattern envelope. Buy a pattern to fit the hip measurement if the hips are large in proportion to the waist. Altering the waist is easier than making alterations at the hipline.

Fabrics which are pliable and have some "give," or a slight degree of stretch, are preferred for women's pants. Curved seams and darts are easier to press in these fabrics. Stiff, firm and hard finish fabrics are difficult to handle.

## TAKING PERSONAL MEASUREMENTS

Accurate measurements are important. Figures with identical waist and hip sizes may require different lengths in the legs, the crotch, or the darts, due to variations in body contour and proportion. Measure over a girdle if you normally wear one with pants. Have someone else take your measurements if possible. Record them on the Pants Measurement Chart.

Ease allowances permit body movement when a garment is worn. Because patterns are designed with ease, the pieces will measure slightly larger than body measurements. Standard ease allowances given on the Pants Measurement Chart should be added to the body measurements before comparing with pattern measurements.

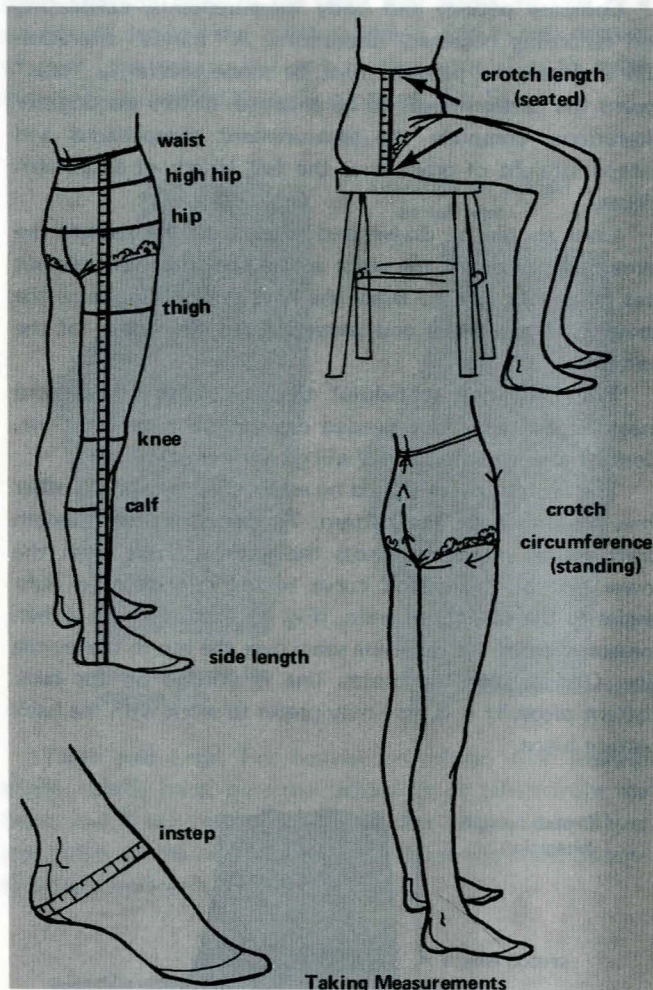
For a closer fit, use the smaller ease allowance; for an easy fit, use the greater allowance. Ease allowances can be reduced about one half for stretch fabrics.

### Where To Measure

1. **Waistline.** Tie a string or cord around the waist to establish the exact waistline. Take a snug, but not tight, waist measurement. Leave cord tied until measurements are finished.

2. **High hip.** Measure across the top of the hipbones, 2 to 4 inches below waistline.

3. **Hip.** Measure around the fullest part of the hip. This may vary depending upon body contour.



4. **Thigh.** Measure around the fullest part.

5. **Knee.** Measure around the center of the kneecap.

6. **Calf.** Measure around the fullest part.

7. **Side length.** Measure the distance from waistline to floor for reference. Pant length will vary according to heel height to be worn.

8. **Crotch length (seated).** Sit on a flat, hard chair or table. Measure from cord at waistline over the hip to the chair.

9. **Instep.** Measure around the heel and over the instep. The finished heel width of the pant leg must be at least equal to this measurement or the foot will not go through.

10. **Crotch circumference (standing).** Stand in a normal position and measure between the legs from waistline at Center Front to waistline at Center Back. Divide the total measure into front and back measures. The front will be measured from the waistline to the inner thigh or point where the inseam would fall. Subtract the front measurement from the total to get the back measurement.



## MEASURING THE PATTERN

Major alterations should be made before the garment is cut, therefore, pattern pieces should be measured at points corresponding to where body measurements were taken. Do not measure across darts and stitching lines of seams.

Compare pattern and body measurements, calculating and recording necessary alterations. A "minus" alteration will indicate the pattern must be made smaller; a "plus" means the pattern needs to be enlarged. Before starting any alterations, complete the measurement comparisons and extend straight of grain lines the full length of all pattern pieces.

Lines should be drawn and labeled on the pattern the same distance below the waist as the personal measurement was taken. Be sure to draw the lines at right angles to the straight of grain line and extend them the width of the pattern.

You may find it helpful to enter both the pattern measurement and your needed measurement on each line. Comparisons and alterations will go more quickly.

The crotch length should be established before the other lines are drawn on the pattern. To compare crotch length draw a line extending across the pattern front from the lower end of the crotch curve to the side seam, at right angles to the straight of grain. (Fig. 1). Crotch length is then measured from the waistline seam over the hip to the crotch line. Occasionally the crotch line is printed on the back pattern piece. If it is, you may prefer to work with the back pattern piece.

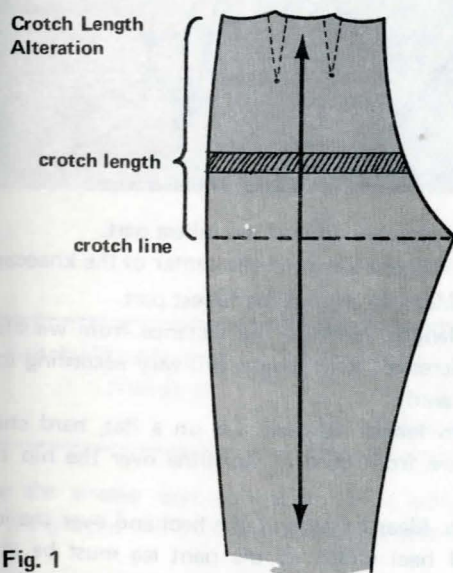
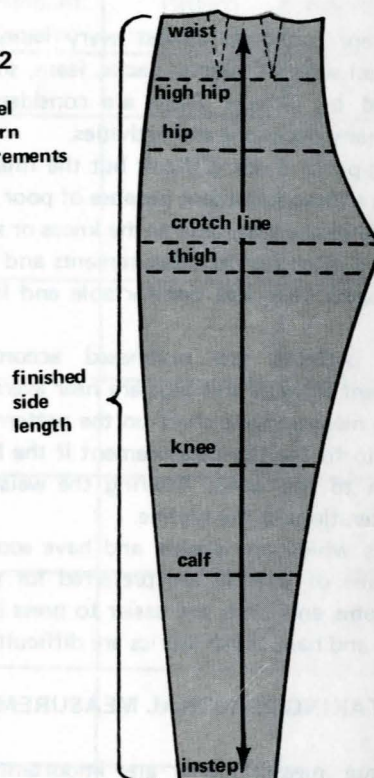


Fig. 1

To shorten the crotch, fold the excess length into a tuck from side seam to center seam. Length is added by slashing across the pattern and spreading it to add the required amount. Place the tuck or slash below the points of the darts and above the crotch line. Alter both front and back patterns the same way.

Once the crotch line is established, draw and label other measurements on the pattern (Fig. 2). Be sure to measure down the same number of inches from the waist on the pattern as you measured on yourself. Use a T-square or L-square to be sure lines are at right angles to the straight of grain.

Fig. 2  
Draw and label  
lines on pattern  
where measurements  
are taken.



The crotch circumference will be the final pattern measurement taken. It will also be the last alteration made if needed.

Stand the tape measure on edge to measure front and back crotch seams. Add together for total crotch seam measurement (Fig. 3).

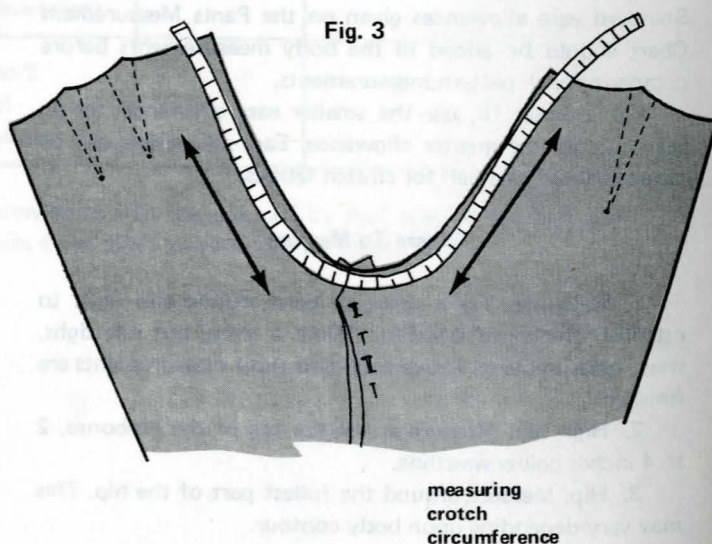


Fig. 3

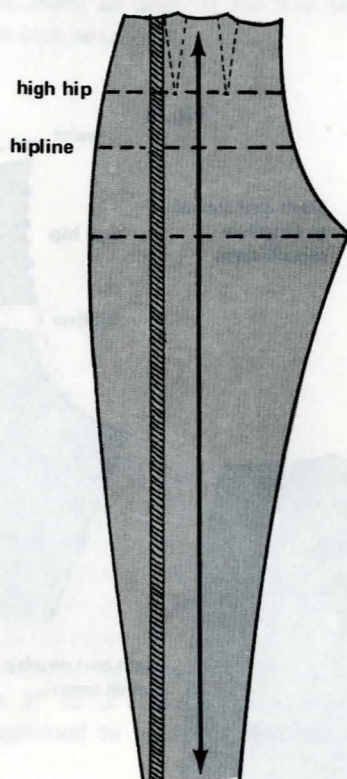


## MAKING ALTERATIONS

**Waistline:** Waistline alterations of 1 inch or less may be made at the side seams. Divide the total amount of "plus" or "minus" by 4 (the number of seam edges). Then add or remove this amount at each side seam, tapering the new seam to the original seam line at the hip. If more than 1 inch alteration is needed, either increase or decrease the width of darts and center front and back seams. An alteration up to  $\frac{1}{4}$  inch may be made on each dart and center seam without affecting the original garment design. Remember, too, a slight excess at the waist can be "eased in" when the waistband is attached.

**High hip and Hipline:** Most hip alterations are made on a vertical line parallel to the straight of grain. Slash and spread the pattern to increase the hip measurement; to decrease, take a tuck in the pattern. Either alteration should extend the entire length of the pattern. Usually half the required alteration is made on the front and half on the back (Fig. 4).

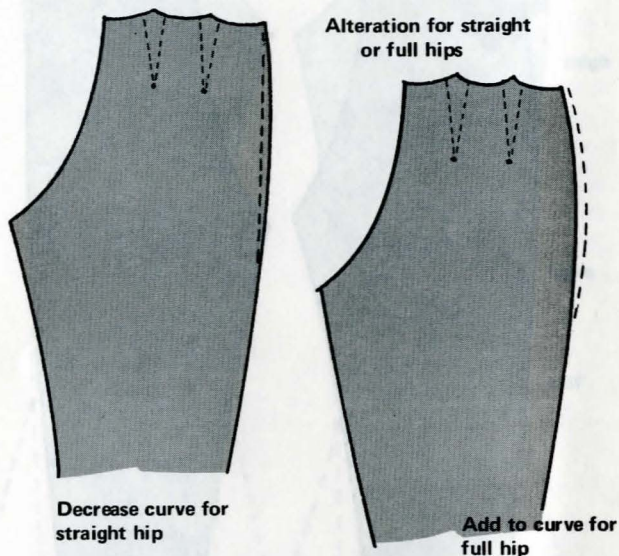
Fig. 4



Now analyze the body contour. If hips curve more than average, add a slight amount to the curve at the front and back side seams. If hips are very straight, decrease the curve at the side seams. Taper these alterations to the original line at the waist and slightly below the crotch.

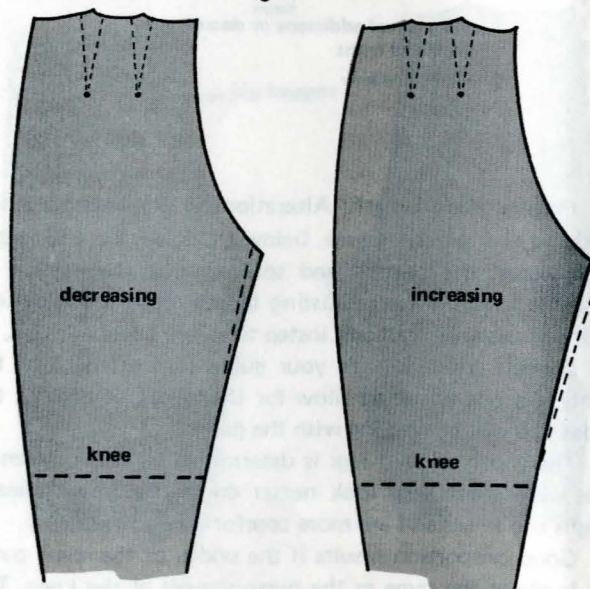
If the abdomen protrudes more than average make a slight addition only to the front side seams. In case of a prominent derriere and a flat abdomen, add a small amount to back side seams, but not to the front. Try to make allowances as needed by body contours (Fig. 5).

Fig. 5



**Thigh and Legs:** For heavier or thinner than average thighs, width must be either added to or taken from the front and back inside leg seams near the crotch. Taper alterations to the original seam line above the knee. Be sure to allow ample ease (Fig. 6).

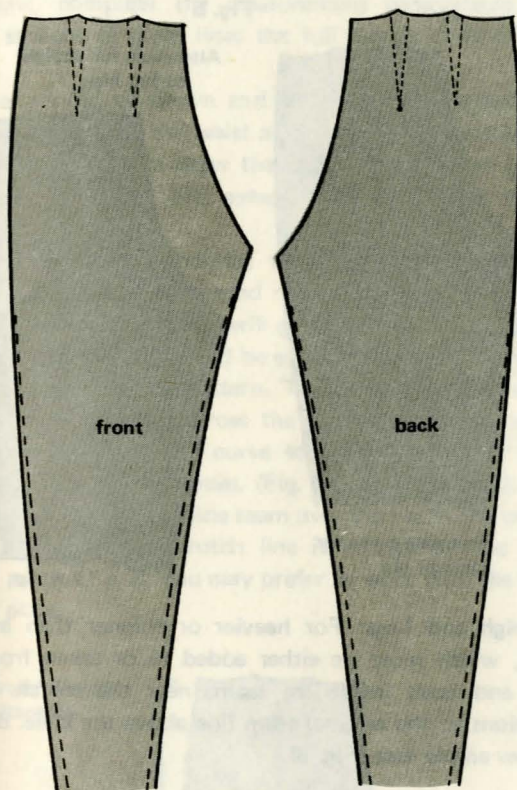
Fig. 6





**Knee, Calf and Instep:** Alterations may be made by adding to or taking in the side seams and inside leg seams below the crotch curve and above the hem. Equal alterations must be made on all seam edges to keep the crease lines in the center of the knee. Carefully retain the gradual slope of the leg seam lines (Fig. 7).

Fig. 7



Make equal additions or decreases to back and front

**Finished Side Length:** Alterations in side length are best made in the lower leg area, below the knee. To add length slash across the pattern and spread; tuck the pattern to decrease length. After adjusting length recheck the pattern width at the knee, calf and instep to assure adequate ease.

Current styles will be your guide to the length of the pants. Do not forget to allow for the height of heel on the shoes you will be wearing with the pants.

The width of pant legs is determined by fashion trends. The wider pants legs look neater on the figure with heavy thighs and knees and are more comfortable to wear.

Good proportion results if the width of the lower pants leg is about the same as the measurement at the knee. The hem width must be at least equal to the instep measurement to allow the foot to slip through.

**Crotch Seam.** Poor fit in the seat of the pants can be caused by a too short or too long crotch seam. The figure with a flat derriere or a swayback is likely to experience a baggy seat problem. The individual with a prominent derriere may find the seat of the pants pulling.

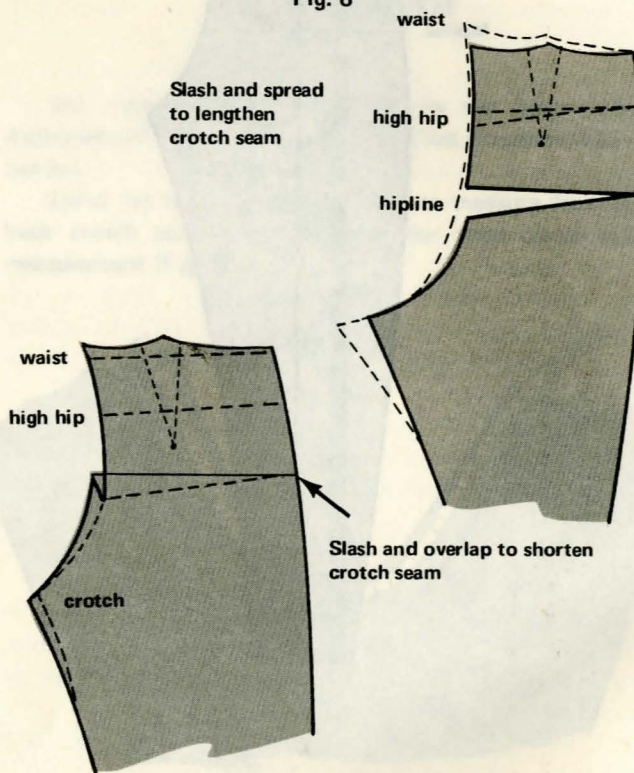
"Smiles," or curved folds, may also occur in the front of the pants. A protruding abdomen, a too short crotch seam or a curve not fitted to the individual may be the cause.

Length may be added or decreased in the front, back or both center crotch seams to improve the fit of the pants. Alterations may be made at any *one, two or all four places*: waistline, high hip, hipline or crotchline. Usually the alterations are made at the crotchline or hipline. Some individuals may, however, get a better fit by dividing the amount to add or deduct and spreading it through several of the alteration points. Analyze your own figure to see just where you need to increase or decrease.

To alter the pattern at the hipline or high hip, slash across from the center seam *up to but not through* the side seam. Overlap to decrease length. Spread to increase length. Redraw the curve to straighten or to make the lines true.

To increase or decrease at the crotch line, redraw the new line, tapering gradually toward the knee. To add or decrease length at the waistline, make the change at the center waistline. Follow the curve of the waist until the new waistline meets the original one at the sideseam (Fig. 8).

Fig. 8



crotch seam alterations



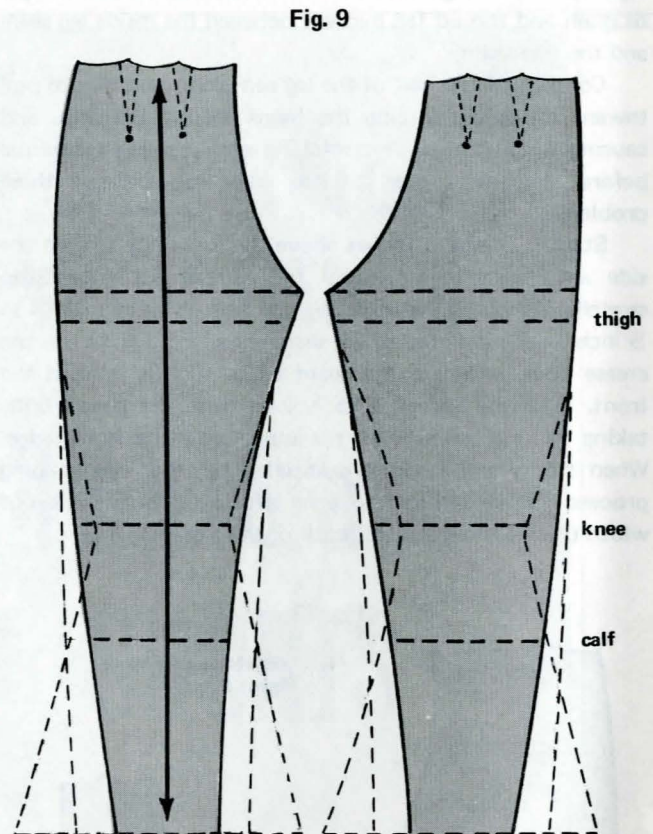
## MAKE A BASIC PATTERN

In working out a well-fitting pants pattern, use a pair of pants with a waistband and a placket. Compare the waistline and darts with a well-fitting basic skirt pattern. From the waistline through the hipline, the two will fit the same. Alterations are also made the same way from the waist through the hipline on the pants as on the skirt.

Try the basic pattern in musline or an inexpensive fabric for a trial fit. Any additional adjustments then can be made and transferred to the pattern. Cut an extra seam allowance on the first pair so that you may make needed adjustments.

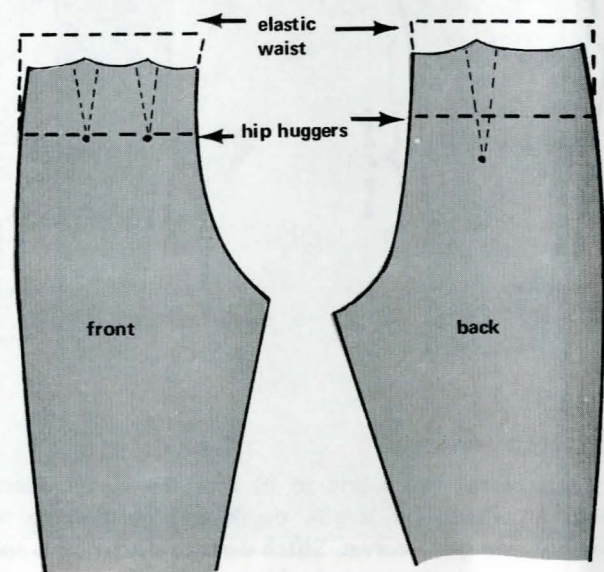
Baste the pants together on the original seam lines. Use twill tape instead of the waistband to see better where the waistline of the pants fall on your figure. Sit and stand in the pants to check the fit.

Once you have a well-fitting basic pattern, you can make your own adjustments for style (Fig. 9). Changes for leg width should be made on each of the four seams. Add an equal amount to each seam.



Make your own style changes

Fig. 10



Change the waistline

Adjustments for elastic waists or hip huggers can also be made from the master pattern. Straighten the hipline and add an allowance for elastic and a seam turnover or casing to the top of the waistline. Darts should be decreased in size or omitted. Check to be sure that the waist is wide enough to be pulled up over the hips.

The hipline of the hip huggers follows the curve of the waistline about 2" to 3" below the waistline. Darts may need to be lengthened to hold the pants close to the hips (Fig. 10).



## HINTS FOR BETTER FIT

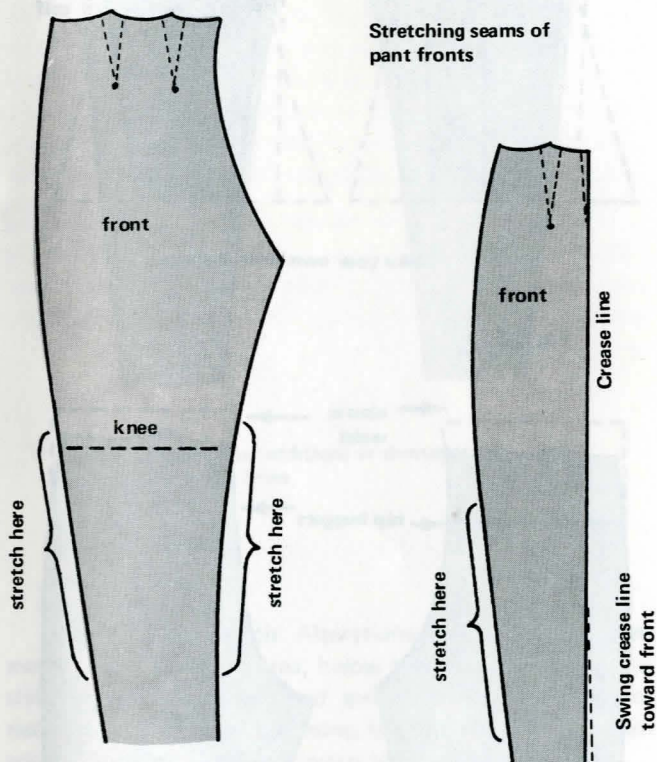
Mark, press or "set" the front crease lines in the pant legs before starting to sew. Crease lines should be on straight of grain and should fall midway between the inside leg seam and the side seam.

Contour of the calf of the leg can cause pant legs to pull toward the back, forcing the hems against the shins and causing baggy knees. A stretching and pressing technique before leg seams are stitched can help prevent these problems.

Starting about 3 inches above the knee line stretch the side and inside leg seams of the pant fronts only. Stop stretching about 3 inches above the hem. Stretch until  $\frac{1}{4}$  to  $\frac{1}{2}$  inch length is added to the seam edges. Fold and press the crease lines, swinging the seam edges slightly toward the front. Trim the excess  $\frac{1}{4}$  to  $\frac{1}{2}$  inch from the pant fronts, taking an even amount all the way across the lower edge. When fronts and backs are stitched together this shaping process will cause hems to hang with equal distribution of width toward the front and back of the legs (Fig. 11).

Fig. 11

Stretching seams of  
pant fronts



Darts permit flat fabric to fit over the curves. Darts should be altered in length, depth and position to fit smoothly over body curves. Stitch darts to sharp points and press as shown on the pattern guide.

Stitch the leg seams and press open before stitching the crotch seams. Pants fit better if the crotch seam crosses the leg seam.

Reinforce the crotch curves with a second row of stitching very near the first stitching. Remember to stretch the back crotch curve as you stitch. For additional reinforcement a narrow piece ( $\frac{1}{4}$  inch wide) of twill tape, seam tape or selvaage may be stitched into the curved crotch seam (Fig. 12).

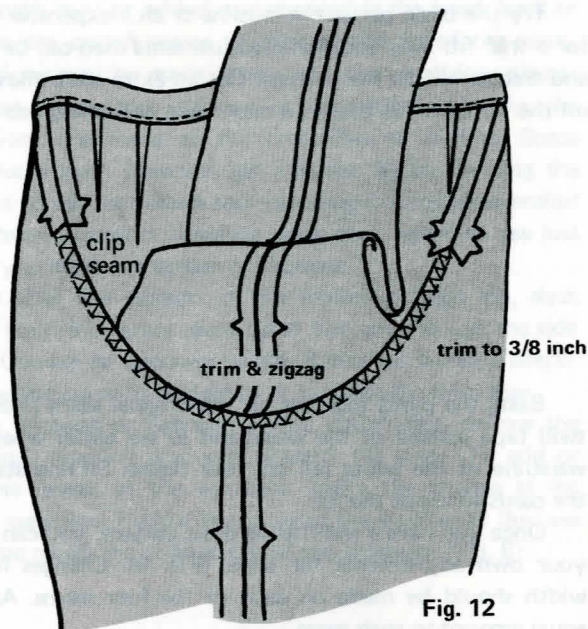


Fig. 12

reinforce crotch curve

Center front and back seams may be pressed open from the waist to the notches above the crotch curve. At the notches clip through the seam allowances almost to the stitching line. Below this point trim the curved seam to about  $\frac{3}{8}$  inch; overcast, zigzag or stitch the trimmed edges together. The curved crotch seam will tend to "stand up" when pants are worn, so it need not be pressed flat.

Put in zippers, waistbands, hems and closures as directed on the pattern guide.

## THE FINAL PRESS

Pressing the finished pants will be easier if front creases were set before you started sewing. The front creases will stop just below the waist darts. They may be edge-stitched to form permanent crease lines in fabrics which do not hold a sharp crease.

The position of the front creases will serve as a guide for setting the back creases. Back creases stop at the crotch; they are seldom edge-stitched. Use heat, moisture and a pounding block to form sharp creases.

Darts and seams pressed during the construction process will need only touch-up pressing when pants are finished.