



TRANSFORMING LIVES  
Through Skilling

Supporting Partners



**CHAPTER - 6**  
**INITIAL DRAFTING, PATTERN MAKING AND  
CONSTRUCTION**

- The trainer will show a video on drafting works in garment industry.
- The trainer will ask a question to all the trainees in the class. The question will be- "How important is drafting or pattern making for making a dress?"

The trainer will also ask, "**Have you ever seen any kind of pattern making?**"

The interested trainees will raise their hands to give the answers and if anybody will give the perfect answer or the best answer, he /she will be praised in the class in front of everyone.

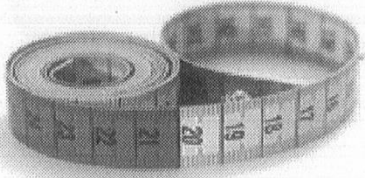
## 6.1. Tools required for Drafting & Pattern Making.

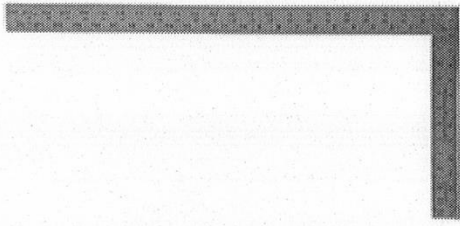
The tools that are used while drafting can be categorized into two parts:

- Measuring Tools.
- Marking Tools.

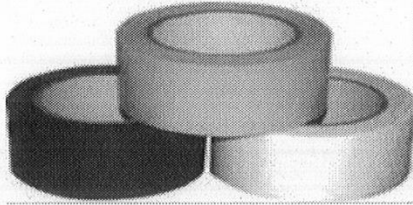
### 6.1.1 Measuring Tools

Measuring tools comprises various tools. In this sub-section, we will learn about them and their functions.

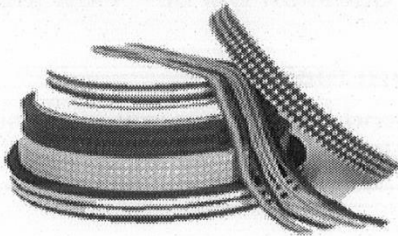
Tools	Description
	<p><b>Measuring Tape:</b></p> <ul style="list-style-type: none"> <li>• It is made of plastic.</li> <li>• It has 60 inches marked on both sides.</li> <li>• A measuring tape has brass tips at both ends.</li> </ul>

**Tailor's Square:**

- It is a L-shaped ruler.
- It generally measures 50cm\*25cm.
- It is made of metal or wood.

**Marking Tape:**

- It is used as a base for marking figures.

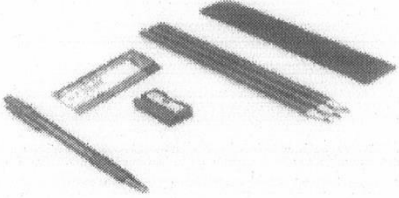
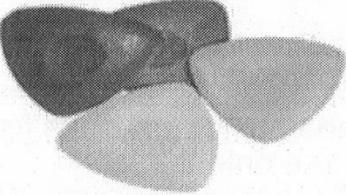
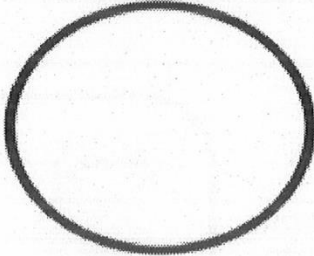
**Elastic:**

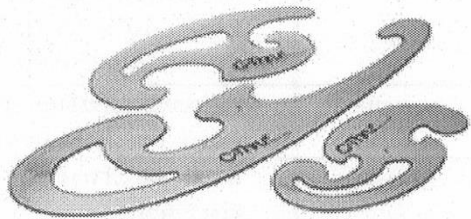
- It is used for outlining waist lines and arm holes.



### 6.1.2 Marking Tools

Once the measurement is accurately taken with the help of measuring tools, marking tools are used to draw the lines and complete the draft.

Tools	Description
	<p><b>Pencil, Pens, Sharpeners and Erasers:</b></p> <ul style="list-style-type: none"><li>• Lead pencils are used for pattern formation.</li><li>• 2H lead pencil is used for drawing.</li><li>• 4H lead pencil is used for pattern.</li></ul>
	<p><b>Tailor's Chalk:</b></p> <ul style="list-style-type: none"><li>• It is used to draw temporary markings on the fabrics.</li><li>• They are available in different colours.</li></ul>
	<p><b>Circle Template:</b></p> <ul style="list-style-type: none"><li>• It is used to draw circular patterns on the fabric while drafting.</li></ul>

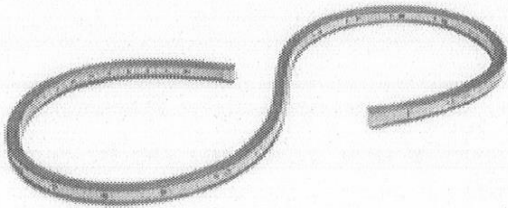


#### French Curves:

- They are made of wood or plastic.
- Can be found in many shapes.
- French curves are used to shape curves and necklines.

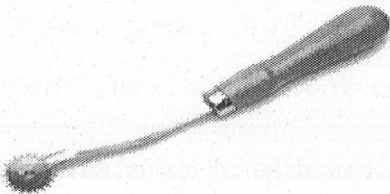
#### Tools

#### Description



#### Curve Ruler:

- Used to shape hips, elbows and lapels.



#### Tracing Wheel:

- Also known as pattern wheel, pounce wheel and dart wheel.
- Multiple teeth are attached on a wheel, which is attached to a handle.
- It is used to transfer markings from a drawn pattern onto the fabric.

### 6.1.3 Measurement and Unit Conversions

In measuring the length and width of materials needed such as fabrics, we need the use of the Metric measurement system.

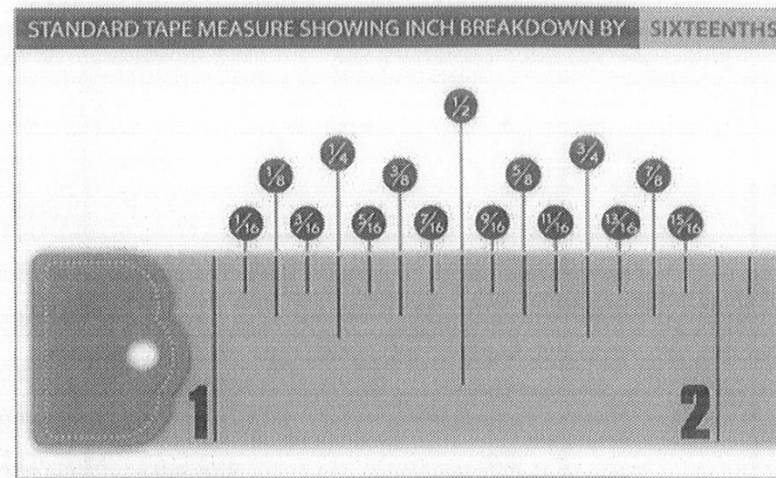
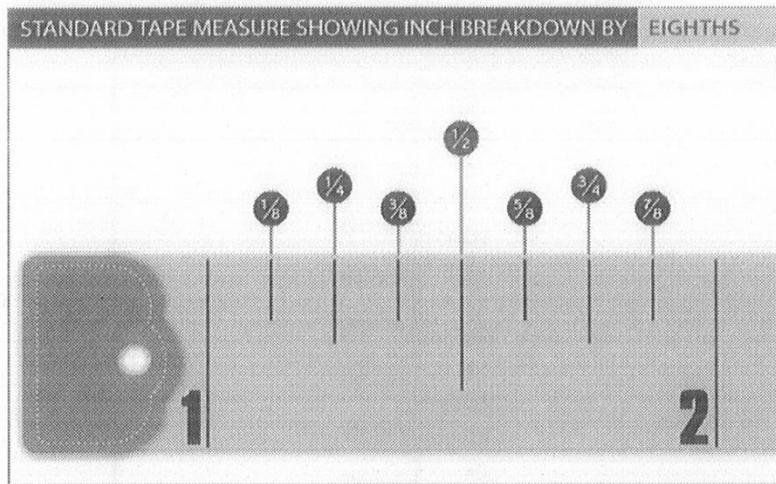
It is very essential as it enables you to convert fabric measurements from inches and yards over to centimeters and meters. Here we illustrate with diagrams the conversions systems.

First, note the scale conversion tables as illustrated by eight and sixteenth mark.



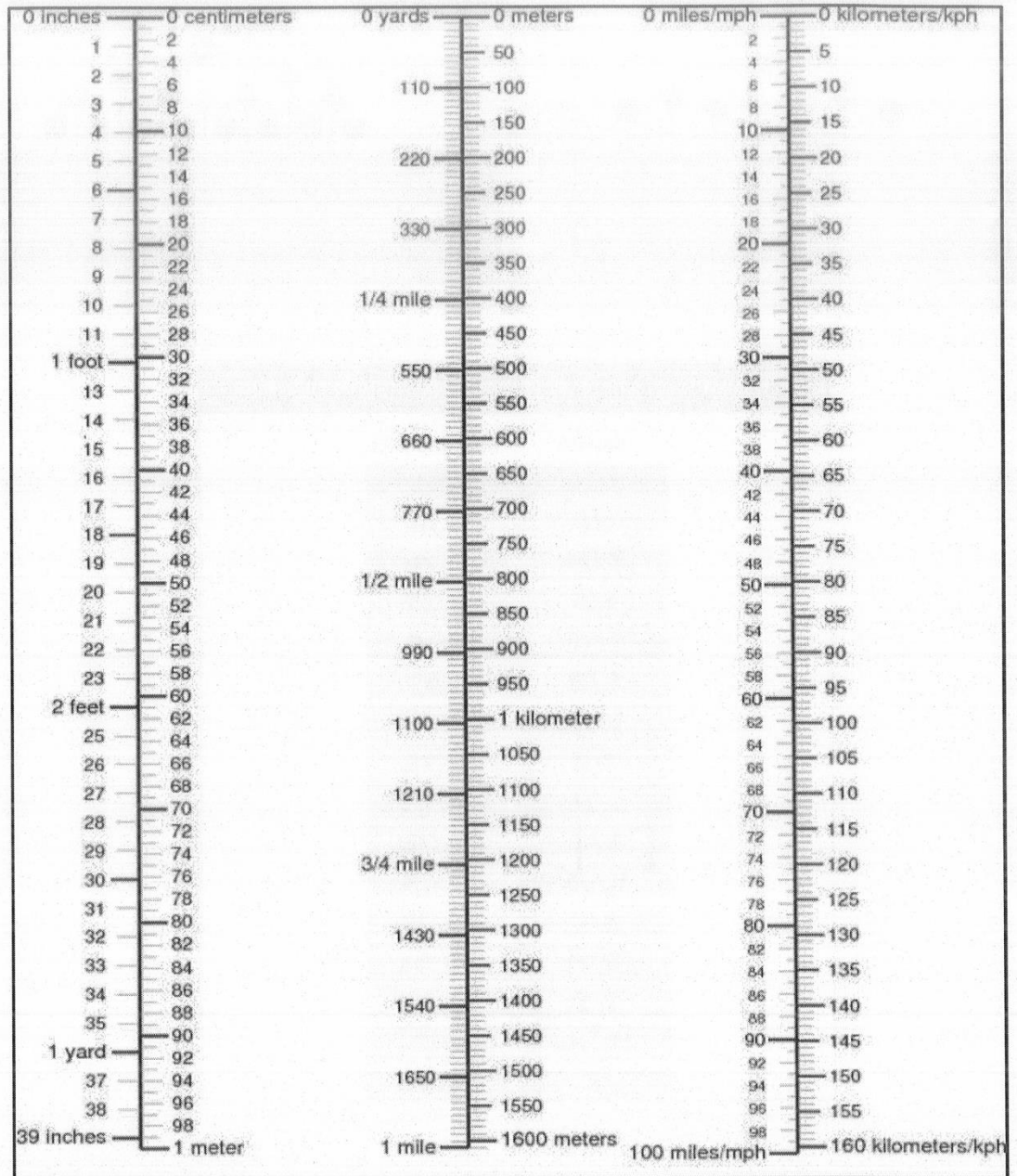
#### DO YOU KNOW?

Women began forming sewing society's in the 1860's where they would gather together and make quilts to sell at church bazaars.



# INCHES TO MILLIMETERS CONVERSION CHART

INCHES	MILLIMETERS
1/16	→ 1.59
1/8	→ 3.18
3/16	→ 4.76
1/4	→ 6.35
5/16	→ 7.94
3/8	→ 9.53
7/16	→ 11.11
1/2	→ 12.70
9/16	→ 14.29
5/8	→ 15.88
11/16	→ 17.46
3/4	→ 19.05
13/16	→ 20.64
7/8	→ 22.23
15/16	→ 23.81
1	→ 25.40



## For Back Neck 1 – 3 inch

Chest Measurements	Neck Width	Shoulder	Armhole Depth
28 to 30 inch	2.25 inch	13 inch	6.5 inch
32 to 34 inch	2.5 inch	14 inch	7 inch
36 to 38 inch	3 inch	14.5 inch	7.5 inch
40 inch	3.25 inch	15 inch	8 inch
42 to 44 inch	3.5 inch	16 inch	8 inch

Apart from the scale measurements, you can also convert measurements from one unit to another by using a specific formula. To convert from inch to centimeters however, we can apply the following formula.



Formula:

$$1 \text{ inch} = 2.54 \text{ cm}$$

$$\frac{1 \text{ in}}{2.54 \text{ cm}} = \frac{2 \text{ in}}{X \text{ cm}}$$

$$X = 2 (2.54) \\ = 5.08 \text{ cm}$$

$$1 \text{ meter} = \underline{100} \text{ centimeters}$$

$$\underline{0.0254} \text{ meters} = 1 \text{ inch}$$

$$\underline{0.3048} \text{ meters} = 1 \text{ foot}$$

$$\underline{0.9144} \text{ meters} = 1 \text{ yard}$$

Furthermore, conversion to meter, foot or yard follow the same pattern by using the conversion values as illustrated in the table below:



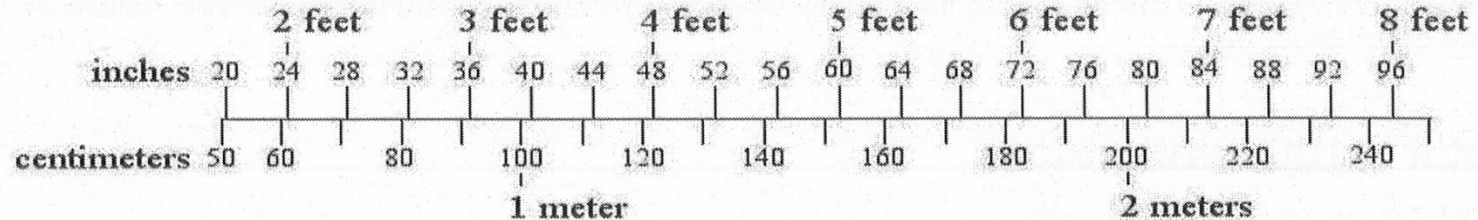
### Conversion Chart

<b>1/4 Inch = 0.25 Centimeters</b>
<b>1/2 Inch = 1.27 Centimetres</b>
<b>5/8 Inch = 1.59 Centimetres</b>
<b>3/4 Inch = 1.905 Centimetres</b>
<b>1 Inch = 2.54 Centimetres</b>
<b>1.5 Inches = 3.81 Centimetres</b>
<b>2 Inches = 5.08 Centimetres</b>
<b>2.5 Inches = 6.35 Centimetres</b>
<b>3 Inches = 7.62 Centimetres</b>
<b>3.5 Inches = 8.89 Centimetres</b>
<b>4 Inches = 10.16 Centimetres</b>
<b>4.5 Inches = 11.43 Centimetres</b>
<b>5 Inches = 12.7 Centimetres</b>
<b>5.5 Inches = 13.97 Centimetres</b>

### Conversion Chart

<b>6 Inches = 15.24 Centimetres</b>
<b>6.5 Inches = 16.51 Centimetres</b>
<b>7 Inches = 17.78 Centimetres</b>
<b>7.5 Inches = 19.05 Centimetres</b>
<b>8 Inches = 20.32 Centimetres</b>
<b>8.5 Inches = 21.59 Centimetres</b>
<b>9 Inches = 22.86 Centimetres</b>
<b>9.5 Inches = 24.13 Centimetres</b>
<b>10 Inches = 25.4 Centimetres</b>
<b>10.5 Inches = 26.67 Centimetres</b>
<b>11 Inches = 27.94 Centimetres</b>
<b>11 Inches = 27.94 Centimetres</b>
<b>12 Inches = 30.48 Centimetres</b>
<b>1 Yard = 0.9144 Meters</b>
<b>2 Yards = 1.8288 Meters</b>
<b>3 Yards = 2.7432 Meters</b>
<b>4 Yards = 3.6576 Meters</b>
<b>5 Yards = 4.572 Meters</b>

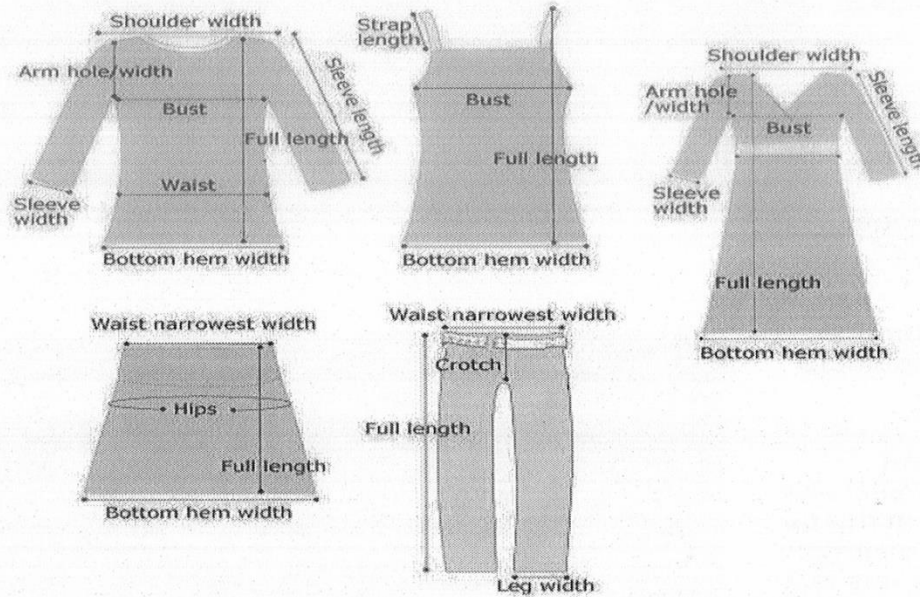
You can also refer to the scale illustration below for further understanding



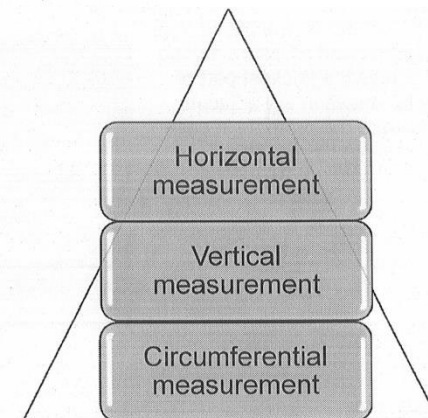
## 6.1.4 Measuring Body Dimensions

### A. Measurement of body

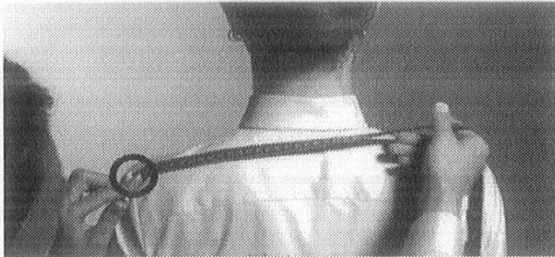
Here, we shall show you how to correctly take and record measurements for both male and female body.



There are three main types of measurements for both male and female body that needs to be collected for proper alterations and dressmaking by a sampling tailor.



### III Horizontal Measurements

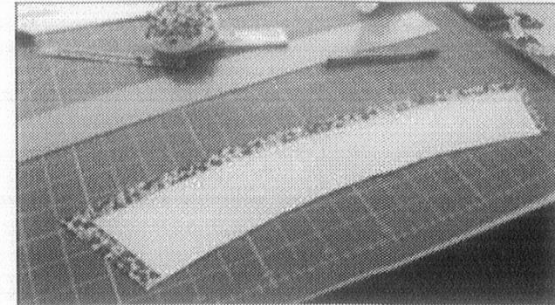


**Shoulder Width:** Here to measure shoulder width think of a line going from your armpit straight upwards to your shoulder. Now, measure between these two points and hold the tape straight to obtain the shoulder width.

#### 6.2. Initial Construction

##### 6.2.1 Pattern and Pattern making

- Patterns are usually made of paper and are sometimes made of sturdier materials like paperboard or cardboard if they need to be more robust to withstand repeated use.
- A sketch can be transformed into a garment via a pattern that interprets the design in the form of the garment components.
- A pattern is one-dimensional while the body is not. The body has height, width and depth.
- Within this roughly cylindrical framework, there are a series of secondary curves and bulges, which are of concern to the pattern maker.
- Darts are the basis of all pattern making. They convert the flat one-dimensional piece of cloth into a three dimensional form, which fits and moulds over all the bulges of the body.
- A pattern maker typically makes a basic pattern from a flat sketch with measurements or a two dimensional fashion illustration. This basic pattern forms the base for setting the pattern making, fit and design.
- The basic pattern is the starting point for flat pattern designing. It is a simple pattern that fits the body with ease for movement and comfort.

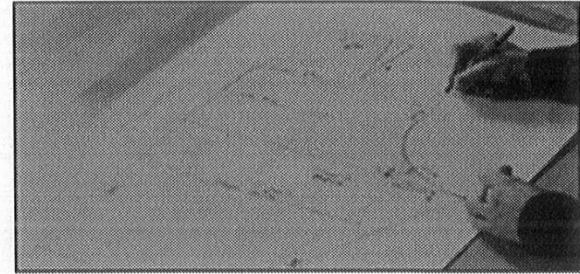




## 6.2.2 Methods of Pattern Making

### Pattern making involves two methods

- Drafting.
- Draping.

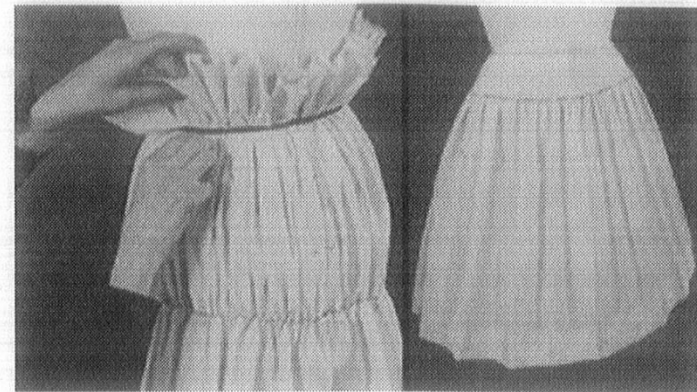


### Drafting

- Drafting involves measurements derived from sizing systems or accurate measurements taken on a person, dress or body form.
- Measurements for chest, waist, hip and so on, and ease allowances marked on paper and construction lines are drawn to complete the pattern.
- Drafting is used to create basic, foundation or design patterns.

### Draping

- Draping is the process of transforming a clothing design into a three-dimensional form.
- Designers love the art of draping because their designs come to life as they manipulate the fabric on the dress form.
- Even though a designer may start out with a design sketch, during the draping process a new and more interesting design usually takes shape. This is why draping is considered the more creative method of pattern making.



## 6.2.3 Anatomy of Cutters

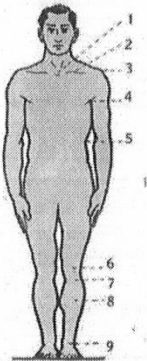
### 6.2.3.1 Head Theory

#### ✓ Eight Head Theory

Artists have divided a grown up human body into eight equal parts, which are equal in height to that of the head. So each part is known as the 'head'. All these eight divisions or heads are as follows:

- 1st head = from hair to chin or nape of neck.
- 2nd head = from nape of neck to nipple or bottom of scye.
- 3rd head = from bottom of scye to naval or hollow of waist.
- 4th head = from naval to fork or pubic organs.
- 5th head = from fork to mid-thigh or end of fingers, with arm at side.
- 6th head = from mid-thigh to small, below knee.
- 7th head = from small to lower leg, just above the ankle.
- 8th head = from lower leg to ball of foot, standing tip-toe. Note: Actually the total human height is computed at  $7 \frac{1}{2}$  heads, but for easy calculations, the height is taken from hair to the foot, standing tip-toe, thus making eight equal parts.

#### ✓ Relative Length Measurements in Men and Women



Making use of "Eight Heads Theory", the following relative length measures can be obtained, for a grown up proportionate human body.

• Nape to the level of armpit = one-eighth of the height (i.e. 1 head).
• Natural waist (i.e. nape to waist) = one-fourth of the height (i.e. -2 heads).
• Fore-arm (i.e. armpit to wrist bone) = one-fourth of the height (i.e. 2 heads).
• Elbow to armpit = one-eighth of the height (i.e. 1 head).
• Inside leg or leg measure = half the full height (i.e. 4 heads) less 5 to 6 cm (2 to 2 ¼").
• Slope of shoulder = one-sixth of the natural waist length.
• Sleeve length (up to wrist) from shoulder = three-eighth of the height (i.e. 3 heads) less 2 to 4 cm ¾ to 1 ½").
• Both the arms extended = full height of the figure (i.e. 8 heads).
• Knee from fork = half inside leg less 5 cm (2").
• Small from knee = 5 to 6.5 cm (2 to 2 ½").
• Calf from small = about 7.5 to 8.75 cm (3 to 3 ½").
• Body rise (i.e. waist to fork). = One-eighth of the height + 5 cm (2").

### ✓ Relative Girth Measurements in Men and Women

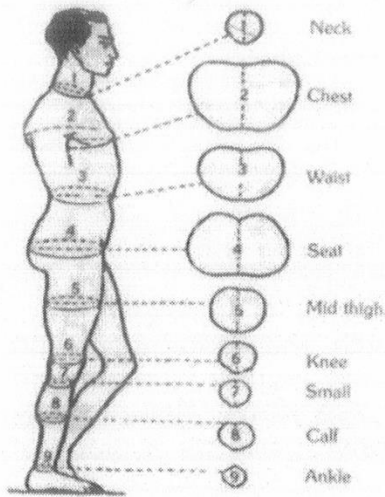
Proportions of the girth measures in men are clearly shown in the figure given below.

The girths from top to bottom are as follows: Out of these girths, the chest measure is very important, as all the other girth measures of a grown up proportionate body are derived from it.

### ✓ Relative Girth Measures in Men:

• Neck = one-third chest + 6.25 to 7.5 cm (2/2 to 3").
• Waist = chest less 10 to 12.5 cm (4 to 5").
• Seat = chest + 2.5 to 5 cm (1 to 2").

- Small round = about one-third seat.
- Knee round = small round + 2.5 to 4 cm (1 to 1 ½").
- Calf round = small round + 2.5 to 4 cm (1 to 1 ½").
- Shoulder (half) = one-fourth chest or less 1.5 cm (½").
- Bottom round = calf round less 2.5 cm (1"), i.e. same as small.
- Scye round = half chest less 0.75 to 1.25 cm (¼" to ½").
- Across chest = one-fourth chest less 2.5 to 4 cm (1 to 1 ½").
- Half back = one-sixth chest + 4 cm (1 ½").



Relative Girth Measures in Men

✓ **Depth of scye (from neck):**

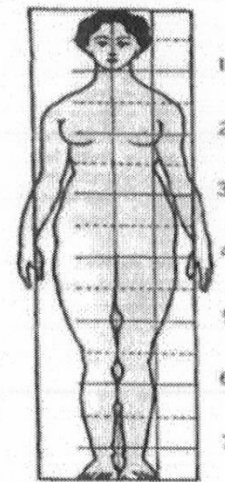
- For chest up to 72 cm (28") = one-fourth chest + 1.25 cm (½").
- For chest from 72 to 92 cm (28 to 36") = one-fourth chest.
- For chest 92 cm (36") and above = one-sixth chest + 7.5 cm (3").



### ✓ Relative Girth Measures in Ladies:

The following relative girth measures of matured ladies are useful in cutting garments like blouse, shirt, coat etc.

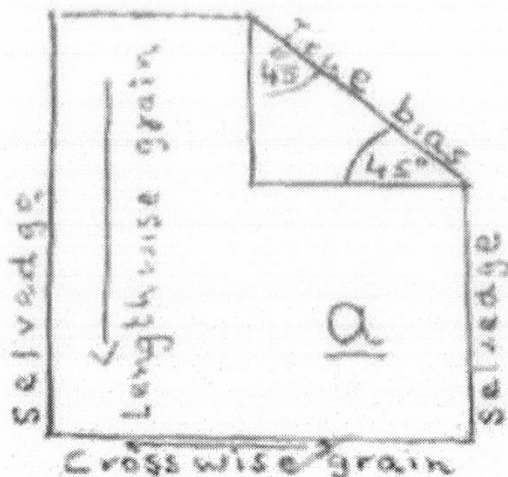
• Neck = one-third bust + 5 to 6.5 cm (2 to 2 ½").
• Waist = bust less 12.5 to 18 cm (5 to 7").
• Seat = bust + nearly 5 to 10 cm (2 to 4").
• Across chest = one-eighth bust + 5.75 cm (2 ¼").
• Halfback = one-sixth bust + 2.5 cm (1").
• Shoulder (half) = one-sixth bust + 4 to 5 cm (1 ½ to 2").
• Round upper arm = one-fourth bust + 5 to 6.5 cm (2 to 2 ½").
• Depth of scye = one-eighth bust + 5 to 6.5 cm (2 to 2 ½").



Relative Girth Measures in Ladies

### 6.2.4 Preparation of Fabric for Cutting

The following basic terms should be understood proceeding to prepare the fabric.

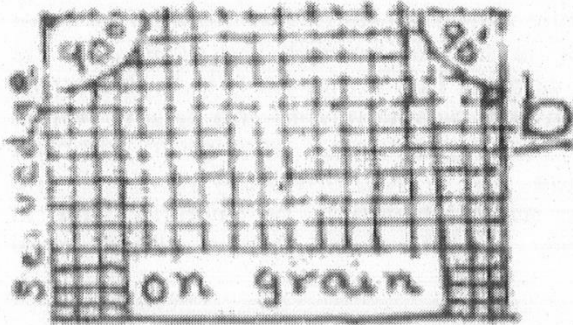
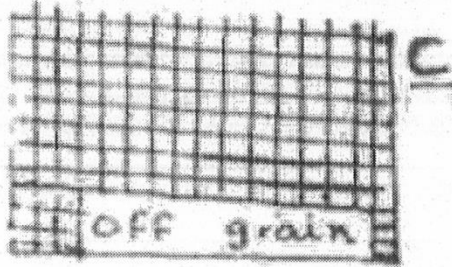


- **Grain (Fig.a):** Grain refers to the direction of yarns in a fabric. Woven fabrics are made up of lengthwise and crosswise or filling yarns interlaced at right angles to each other. These yarns are called the lengthwise and crosswise grains of the fabric. On patterns, lengthwise grain is referred to as straight grain. Bias grain is any direction on a fabric that does not exactly follow a lengthwise or a crosswise yarn. True bias makes a 45° angle with the lengthwise and crosswise yarns. Lengthwise yarns are usually stronger and heavier and stretch less than crosswise yarns. This property can be used to identify the lengthwise grain on a piece of fabric which has no selvage.

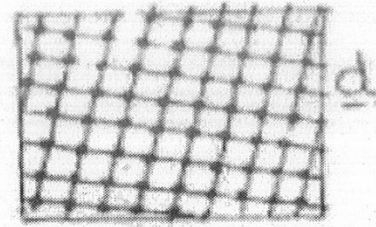
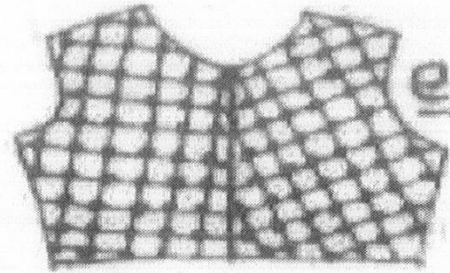
Stretch the fabric along one grain, holding it taut with one's two hands held 2"-3" apart; then it should be stretched it similarly along the perpendicular grain. Of the two directions, the one which stretches less is the lengthwise grain.

- **Selvedge:** This is the finished edge of the fabric which runs lengthwise (See Fig.a) Selvedge is woven differently with extra yarns and stronger yarns than the rest of the fabric. In a good quality fabric, the selvedge is very compactly woven and is about half an inch wide. On poor fabrics, selvedge will be narrow and loosely woven.

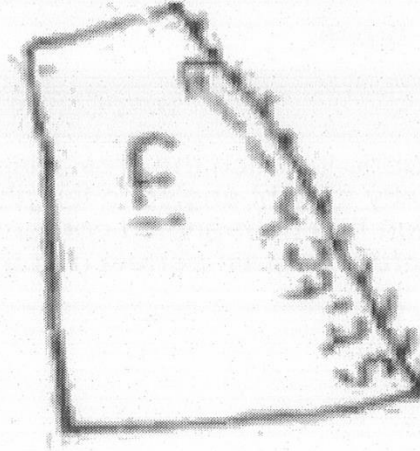
### 6.3 Grain and Its types

DIFFERENT TYPES OF GRAINS	
<p><b>On grain:</b> A fabric in which the crosswise yarns run exactly at right angles to lengthwise yarns and which has right-angled corners is said to be on grain or grain perfect (Fig.b).</p>	 <p>The diagram shows a rectangular grid representing fabric. The vertical lines represent lengthwise yarns and the horizontal lines represent crosswise yarns. They intersect at right angles. The corners are marked with '90°'. The left edge is labeled 'selvedge' and the right edge is labeled 'b'. The text 'on grain' is written at the bottom of the grid.</p>
<p><b>Off grain:</b> A fabric in which the crosswise are not running exactly at right angles to lengthwise yarns is referred to as off grain fabric. This happens because the fabric has been pulled out of shape and pressed in that position during finishing at the factory.(Fig.c).</p>	 <p>The diagram shows a rectangular grid representing fabric. The vertical lines represent lengthwise yarns and the horizontal lines represent crosswise yarns. The horizontal lines are slanted relative to the vertical lines, indicating they are not at right angles. The right edge is labeled 'c'. The text 'off grain' is written at the bottom of the grid.</p>

**Off grain print:** In a print made of lines, checks, etc., if the lines do not run straight along lengthwise or crosswise grain, it is referred to as an off grain print (Fig.d). Fabrics with off grain prints should not be selected for garment construction because with such fabrics it will be almost impossible to make the right and left half of the garment identical in design or to match the design along seams, center front, center back etc.(Fig.e)

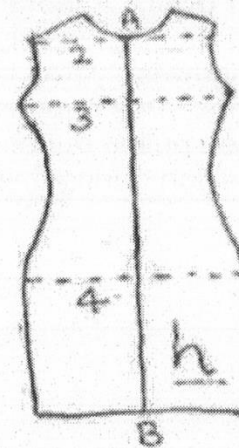
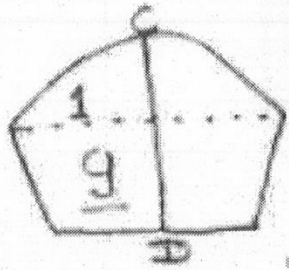


**With the grain, against the grain:** Stroke a bias-cut edge of a fabric with your thumb and forefinger. You will find that if the stroking is in one direction the yarns tend to come apart causing the edge to fray, while if you stroke in the opposite direction the yarns close up compactly with the rest of the fabric. The latter direction is said to be with the grain and the former, against the 'grain. (In (Fig.f), the arrow points in the direction with the grain). While working (cutting, stitching, ironing etc.) along a bias edge, one should obviously work with the grain to avoid stretching or raveling. This is especially important for fabrics which ravel easily.



### 6.3.1 Importance of Grain in Cutting and Construction

The manner in which a garment is cut in relation to the grain lines of the fabric affects the durability, fit and hang of the garment. Garment should be cut in such a way that the lengthwise grain is parallel to garment length along Centre front (along A B in Fig.h), Centre back, Centre of sleeve (along C D in Fig.g) etc.



Because of the greater strength of lengthwise yarns, garments cut on lengthwise grain hang better and will be more durable.

Ruffles, pleats and gathers will fall in graceful folds only if the folds follow lengthwise yarns. Moreover, the additional stretch of the crosswise grain will be needed across the body for movement. An exception to the above rule is the case of yokes which are usually cut on crosswise grain (Centre front and Centre back edge parallel to crosswise grain).



Sometimes yokes are cut on bias for design interest. In striped fabrics one may cut the front and back of the garment on true bias to get the chevron effect. In a well-constructed garment, not only should the lengthwise grain run lengthwise on the body but the crosswise grains should be at right angles to the lengthwise grain or parallel to the floor at the base of the neck (line 2 in Fig.h) across the bust (line 3) across the fullest part of the hip (line 4) at the base of the sleeve cap (line 1 in Fig.g) etc. This cannot be achieved if you are using an off grain fabric for cutting.

The result will be an ill-fitting garment which has wrinkles, lacks balance and is uncomfortable to wear.

If a dress design should look balanced on the figure, the right half and left half should be identical in design, shape and grain. In this context special care must be exercised when buying fabrics with printed stripes or checks. If these prints happen to be off grain, as in (Fig.d), you can balance the design on the right and left half of the garment only by disregarding the grain, and this will create problems as mentioned earlier. Even so, this is preferable to making the fabric grain- perfect at the expense of balance in design. These problems do not arise in the case of woven checks and stripes.

As a final point, recall what has been said earlier about cutting and stitching along a bias direction: always work with the grain and not against.

## 6.4. Pattern Making – Drafting

### 6.4.1 Introduction to Pattern Drafting

The basic blocks can be drafted to fit individual figures by using personal measurements instead of the standard ones. The basic pattern is also referred to as a sloper, block and master or foundation pattern. It consists of five pattern pieces – Bodice front, bodice back, skirt front, skirt back and the sleeve. The basic pattern can have only a minimum number of darts and seams and it should fit the body comfortably without being tight or loose. The designer uses a foundation block as a basis for making the pattern for a design. She may introduce style lines, tucks, gathers, pleats or drapes.

#### 6.4.2 Principles of Pattern Drafting and Pattern Details

Drafting can be done on ordinary brown paper which should not however be too thin. To obtain an accurate draft, use a sharp pencil, and a ruler for drawing straight lines. To get the corners at right angles, keep an L scale or set squares ready. Before drafting, it is important to understand the procedures and instructions clearly, and to have practice in drawing a well-balanced pattern with smooth curves and straight lines. You must understand the following principles before starting to attempt drafting.

1. Patterns must be made larger than body measurements to allow for freedom of movement, ease of action and comfort in wearing. Recommended ease allowance for various parts of the body are listed below. Bust 3" to 5" (3" for a tight fitting garment and 5" for loose fitting one); Waist  $\frac{1}{4}$ " to  $\frac{1}{2}$ "; Hip 3" to 5"; Upper arm 3" to 4"; Arm hole depth 1"; Bodice length nil; Sleeve length nil; Skirt length nil.
2. For symmetric designs where the right and left sides are alike, paper pattern for half front and half back only need to be made: For the bodice, start the drafting with the back part. For sleeves, full pattern must be drafted.
3. It is better to draft the primary or basic pattern blocks—plain bodice, plain sleeve, plain skirt without seam allowances. When this is done, be sure to leave seam allowances while laying out the pattern on the material at the time of cutting. If you do not have much experience in cutting, and want to avoid the risk of cutting without seam allowance, you may add seam allowances to your paper pattern itself after completing the draft.
4. The following construction details and information should be recorded and marked clearly.
  - a) Name of each piece of pattern (bodice front, bodice back, sleeve etc.).
  - b) Number of pieces to be cut with each pattern piece. (For example, for a back open dress you have to cut 1 front, 2 backs and 2 sleeves).
  - c) If seam allowances are not included in the draft, this should be mentioned. If seam allowances are included, seam lines and cutting lines should be clearly shown.
  - d) Length wise or straight grain line should be drawn with a red pencil as shown (<---->) on all pattern pieces. This line indicates that the pattern should be kept on the cloth in such a way that the line is parallel to the length of the cloth or the selvedge. It is usually drawn parallel to the Centre front and Centre back edges of the pattern.

e) Provide matching notches or balance marks if necessary along seams to show which seams are to be joined together and where Centre front and Centre back line should be marked. It is advantageous to cut outward notches at Centre front and Centre back of pattern pieces because at the time of assembling the garment, notches on collars can be matched to notches on the neck line of garment etc.

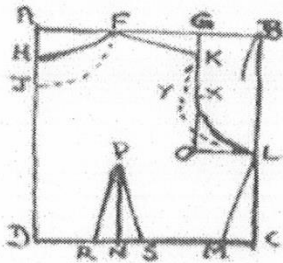
f) Fold lines should be clearly shown. Fold lines appear along Centre front or Centre back edges and sometimes along hems to show where the material is to be folded, dart markings, pleat markings etc. should be clearly shown.

### 6.4.3 Steps in Drafting

#### Sample measurements (7 years old):

- Chest 24".
- Waist length 10 ½".
- Waist 23", back width 11".
- Sleeve length 5".

#### Basic Bodice Front and Back



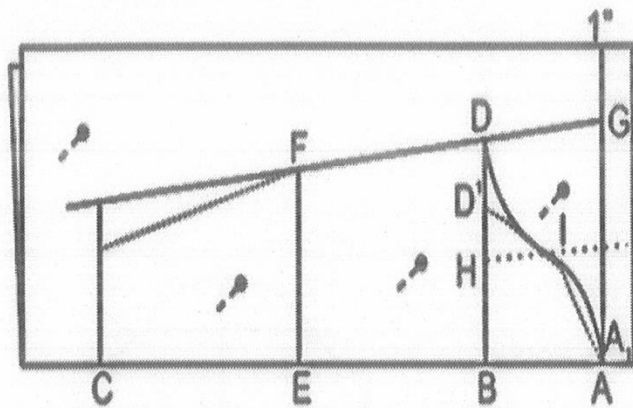
**Bodice pattern (Fig.1):** For children, back and front pattern can be drafted within the same rectangle because it is not necessary to make the front larger than the back.

#### Construct rectangle ABCD with the following measurements:

- $AB = \frac{1}{4} (\text{bust} + 5" \text{ ease allowance}) = \frac{1}{4} \text{ bust} + 1 \frac{1}{4}" = 7 \frac{1}{4}"$ .
- $AD = BC = \text{back waist length} + \frac{1}{2}"$ .
- Mark  $AG = \frac{1}{2} \text{ back width} = 5 \frac{1}{2}"$ .
- $AF = \frac{1}{12} \text{ chest} = 2"$ , •  $AH = 1"$ .
- $AJ = \frac{1}{12} \text{ chest} + \frac{1}{4}" = AF + \frac{1}{4}" = 2 \frac{1}{4}"$  and  $GK = 1"$ .
- Connect HF with a bold line as shown. This is the back neck line.
- Connect JF with dotted line as shown. This is the front neck line.
- Connect FK with a straight line. This is the shoulder seam.
- Mark  $BL = \frac{1}{4} \text{ chest} = 6"$ .
- Draws GO parallel to and equal to BL.

- Mark  $KX = \frac{1}{3} KO$  and  $XY = \frac{1}{2}$ ".
- Connect  $KXL$  as shown with a bold line. This is the back arm-scye line.
- Connect  $KYL$  as shown with a dotted line. This is the front arm-scye line.
- Mark  $CM = \frac{1}{2}$ ". Connect  $LM$ . This is the side seam.
- For dart, mark  $DN = \frac{1}{2} DM - \frac{1}{2}$ " and  $NP = CL - 1$ ". Mark  $R$  and  $S$ .  $\frac{1}{2}$ " on either side of  $N$  and connect  $RP$  and  $SP$ .

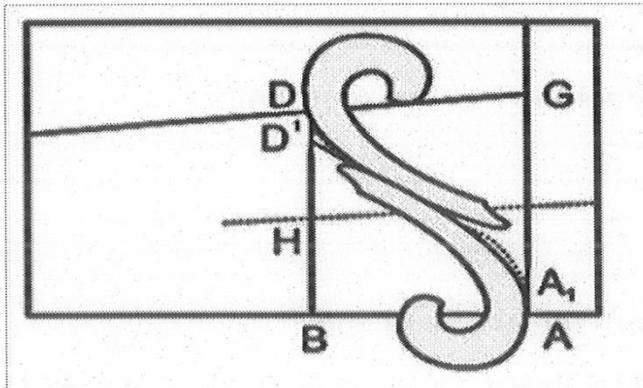
### 6.5.1 Drafting a Sleeve Block



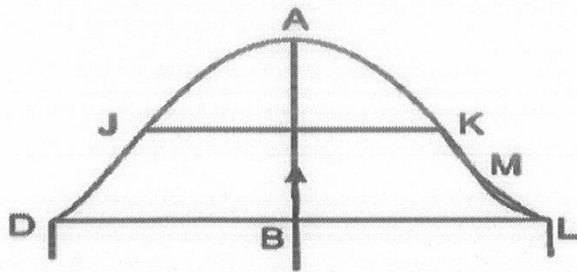
- Mark a guide line 1" away from the edge and label A
  - ✓ A to B = Cap height.
  - ✓ A to C = Full length.
  - ✓ B to D =  $\frac{1}{2}$  bicep circumference.
  - ✓ B to E =  $\frac{1}{2} BC - 1\frac{1}{2}$ ".
  - ✓ E to F =  $\frac{1}{2}$  elbow circumference (that includes ease of  $\frac{1}{2}$ " minimum).
  - ✓ Join D to F extending to a line squared from C.



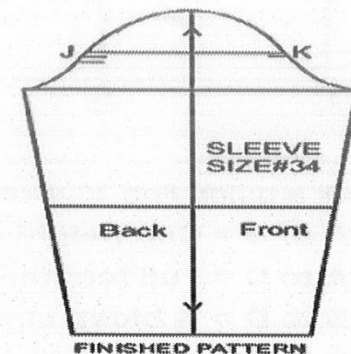
- **Extend D to G**



- ✓ Find midpoint of B D line and A G by folding the paper lengthwise.
- ✓ On this line mark H to I =  $\frac{1}{2}$  cap height +  $\frac{3}{4}$ ".
- ✓ Mark A to A1 =  $\frac{1}{4}$ " and D to D1=1".
- ✓ Join A1 to I and I to D1 with dotted lines.
- ✓ Draw the armhole curve with the help of French curve keeping the guide line in perspective as demonstrated in the diagram.



- ✓ Find the midpoint M of KL line and on M go in  $\frac{1}{4}$ ". Redraw the front curve as demonstrated.
- ✓ Mark the notches.
- ✓ For front mark one notch =  $\frac{1}{2}$ " below point K.
- ✓ For back mark two notches, one at  $\frac{1}{2}$ " below J and next  $\frac{1}{2}$ " away from the first notch.



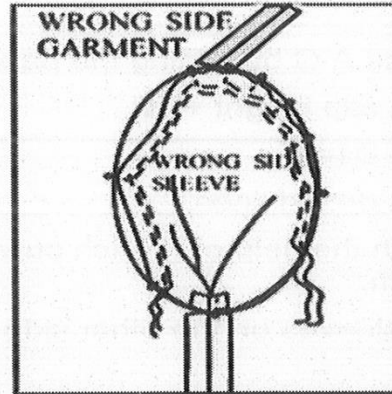
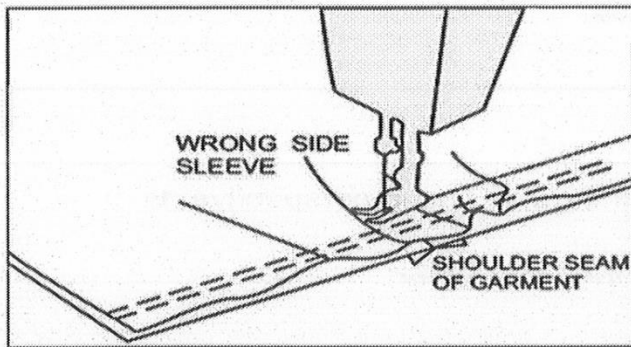
- **Sleeve Attachment**

- ✓ Trace the pattern on Muslin.
- ✓ Carefully and accurately transfer all sleeve and armhole markings from the pattern paper to the muslin.
- ✓ Make sure to use proper pressing techniques during construction.
- ✓ Whenever possible, finish the lower edge of the sleeve before attaching it to the garment.

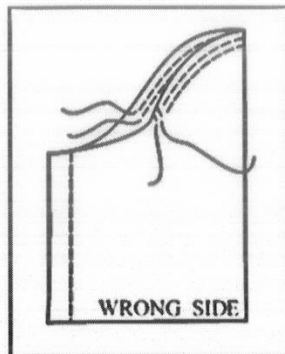
- **Steps of Construction**

Follow the steps below to attach the sleeve to the armhole:

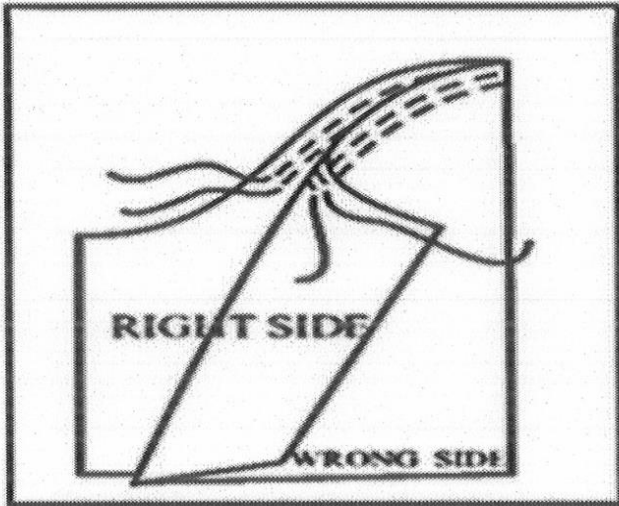
- ✓ Place two rows of stitching on the cap of the sleeve 1/8" away from the stitching line.



- The distance between the two lines should be 1/4". Make sure that the stitch size is not more than the usual one.



- Leave long threads at the starting & end of both the seams.
- Face right to the right side and stitch at the side of the sleeve.

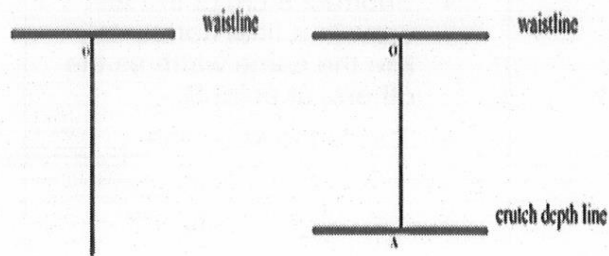


- Pull the threads and insert the sleeve inside the armhole of the bodice.
- Adjust the size of the sleeve cap by pulling and releasing the thread.
- Put pins in position.
- Stitch the sleeve to the armhole.

## 6.6. Trouser Block

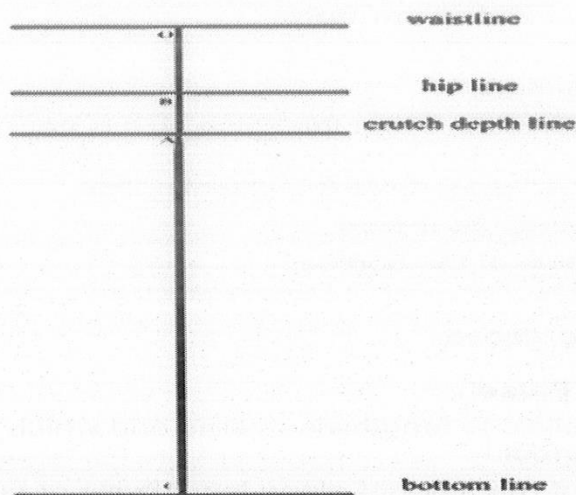
### 6.6.1 Drafting a Trouser Block

#### STEP ONE



- Mark origin point (O), located at the top left of the pattern paper, some distance in from the left edge.
- Draw a horizontal line through this point and stretching out both sides of the origin point, more than about half the hip width.
- This is the waist line.
- From the origin point O, measure downwards the crutch depth.
- Place a point A; connect with the origin point O (a vertical line).
- Draw in a second horizontal line at this location.
- This is the crutch depth line.

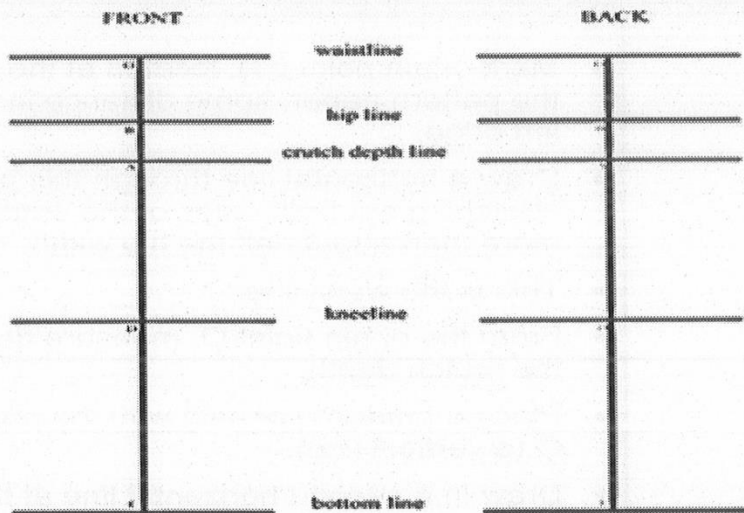
#### STEP TWO



- Measure the waist-to-hip distance downward from the origin point O.
- Mark it as point B.
- Draw in a third horizontal line of the same width as the other two - this is the hip line.
- Measure the waist-to-ground distance.
- Draw a horizontal line downwards from the origin point O at point C.
- This is the bottom line of the pants.

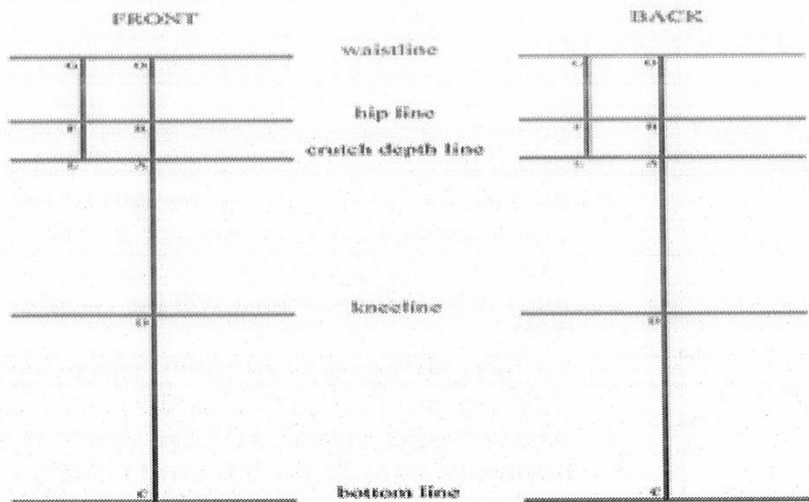


### STEP THREE



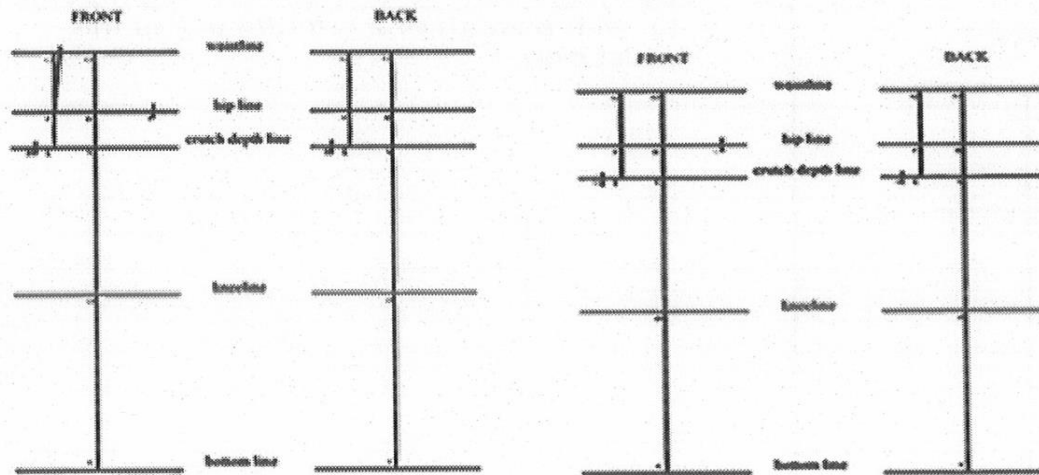
- Measure from the point A (the crutch depth point) down half the distance to point C (the bottom line).
- Subtract 5 cm (2 in.) and draw in a final horizontal line the same width as the others, at point D.
- This is the knee line.

### STEP FOUR



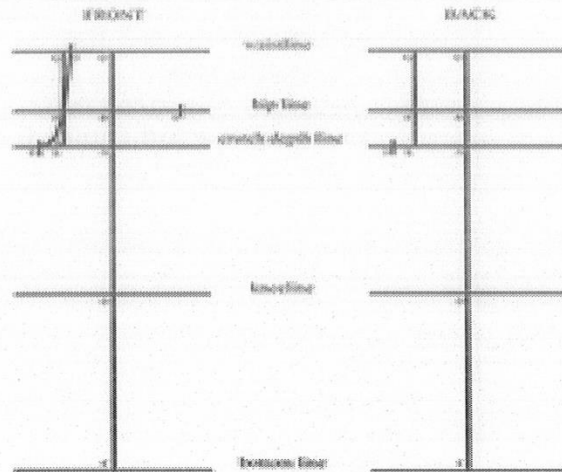
- On the Front Leg Panel, from point A (the crutch depth line), measure one twelfth ( $1/12$ ) the hip measurement.
- Add 1.5 cm ( $9/16$  in.) towards the left (point E).

## STEP FIVE

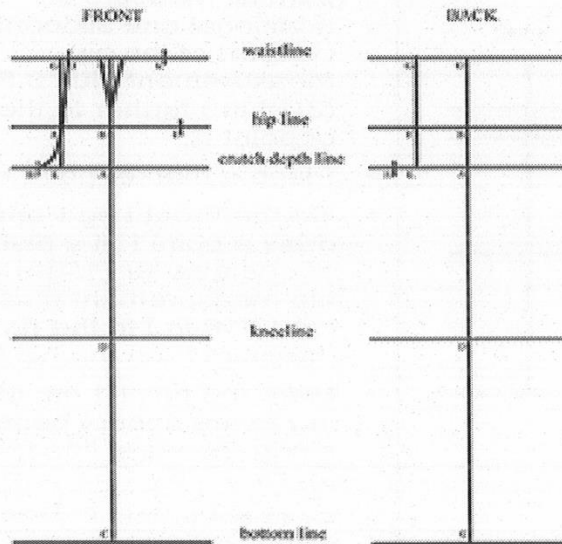


- On both front and back leg panels, measure an additional one sixteenth ( $1/16$ th) of the hip measurement plus 0.5 cm ( $3/16$  in.) further to the left of point E.
- Place a marker point H.
- On the Front Leg Panel draw a point I at a distance of one quarter ( $1/4$ th) of the hip measurement plus 0.5 cm ( $3/16$  in.) to the right of the point F on the hip line.
- Mark the point 1 cm ( $3/8$  in.) to the right of point G along the waist line (point J)
- Connect points F and J with a straight line.
- This is the seam that will usually be used for a fastener (zipper, buttons, etc.)

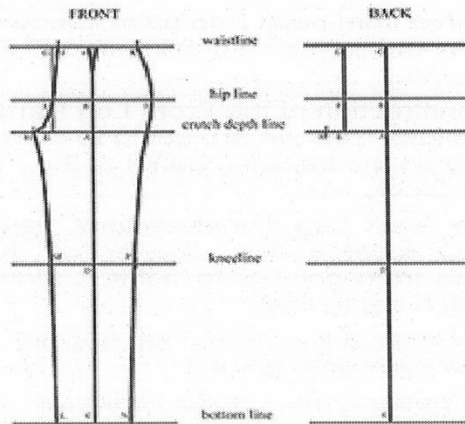
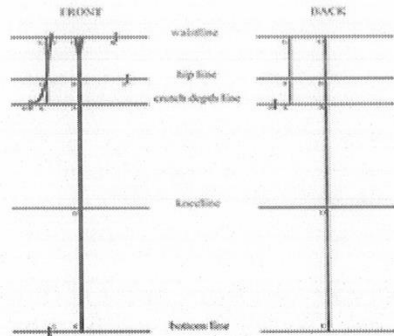
## STEP SIX



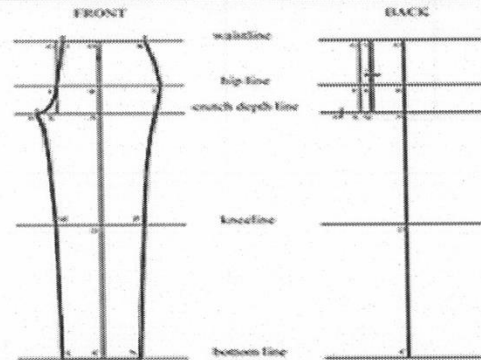
- On the Front Leg Panel, draw in a small diagonal, inward pointing line from both point E (green line in diagram). For waist sizes of:
  - 66 cm (26") or less, the length of this diagonal will be 2.75 cm (or 1-1/8").
  - Between 66 cm (26") and 78 cm (30"), the length of the segment will be 3.00 cm (1"-1/4).
  - 78 cm (30") to 91 cm (36"), the length of the segment should be 3.25 cm (1-3/8").
  - Above waist sizes of 91 cm (38"), the segment should be 3.5 cm (1-1/2").
- Connect points H and F with a curved line
- On the Front Leg Panel, mark the point K, which is located a quarter of the waist measurement plus 2.25 cm (7/8 in.) to the right of point J.
- Construct a dart of 10 cm (4 in.) long, pointing downwards from the origin point O, with a width of 2 cm (3/4 in.) at the waist end.



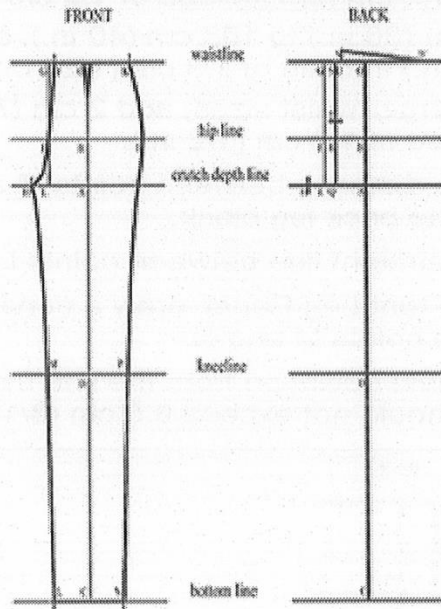
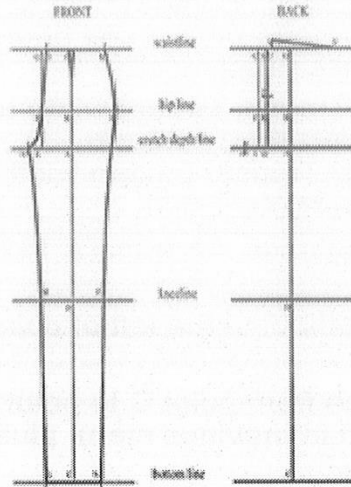
## STEP SEVEN



- Mark the point (L) located half the bottom width minus 05 cm (3/8 in.) to the left of the point C. You can estimate the trouser bottom width by using the following formula:
  - (Metric) Trouser bottom width (cm) =  $0,125 \times \text{waist (cm)} + 13 \text{ cm}$
  - (Imperial) Trouser bottom width (in.) =  $0,125 \times \text{waist (in.)} + 5 \text{ in.}$
- Note this distance, for transfer to the Back Leg Panel.
- Mark the point M to the left of point D on the knee line.
- The distance from point C to point L (determined in previous step), plus 1.3 cm (1/2 in.).
- **For waist sizes:**
  - Between 78 cm (30 in.) and 91 cm (36 in.), add 1.5 cm (5/8 instead of 1,3 cm (1/2 in.)).
  - 91 cm (36 in.) to 103 cm (40 in.), add 1.7 cm (3/4 in.) instead of 1,3 cm (1/2 in.).
  - For larger waist sizes, add 2 cm (7/8 in.) instead of 1.3 cm (1/2 in.).
- Note the distance between points M and D, for transfer to back leg block.
- Draw a straight line between points L and M.
- On the Front Leg Panel, draw a curved line between points M and H.
- The largest deviation from the line between M and H should not exceed 0.5 cm (3/16 in.).



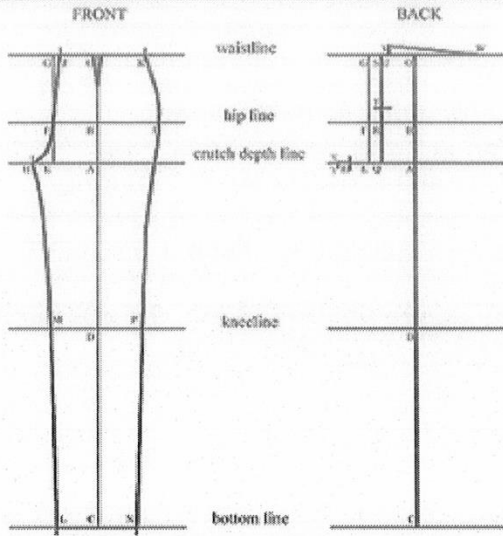
## STEP EIGHT



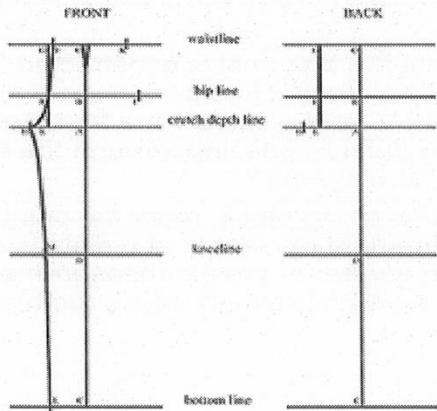
- On the front leg panel, mark point N on the bottom line at the same distance to the right of point C as was L to its left. So  $NC=CL$ .
- Mark point P on the knee line, at the same distance to the right of point D as M was to its left. So  $MD=DP$ .
- Draw a straight line connecting points N and P.
- Draw a curved line from point P through its maximum deviation at point I and then curving in to point K at the waist line.
- The curve from point P to point I should deviate outwards by a maximum of 0.5 cm (3/16in.)
- The construction of the Front Leg Panel is complete. Now we are going to start working on the back leg panel of the trouser block.
- On the Back Leg Panel pattern, mark point Q located one quarter of the distance from point E to point A along the crotch depth line.
- Draw a vertical line from point Q point R to the waist line, point S.
- On the pattern, mark point T midway between the crotch depth line (point Q) and waist line (point S).



## STEP NINE

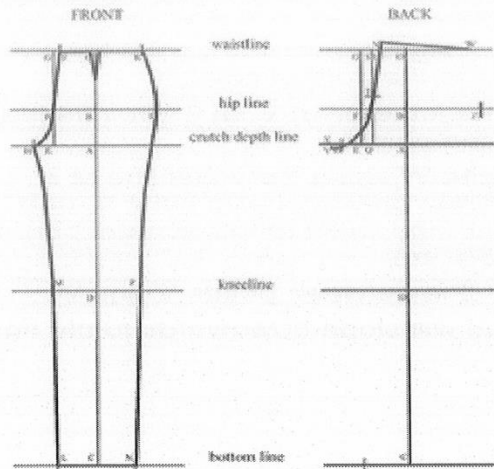


- On back leg pattern, mark point U, at 2 cm. (3/4 in.) to the right of point S
- Then mark the point V, at 2 cm. (3/4 in.) above the point U.
- Find point W along the waist line at a straight line distance from point V, one quarter of the waist measurement plus 4.25 cm (1-5/8 in.)
- Draw a line between points V and W.
- This line will slope downwards to the right.



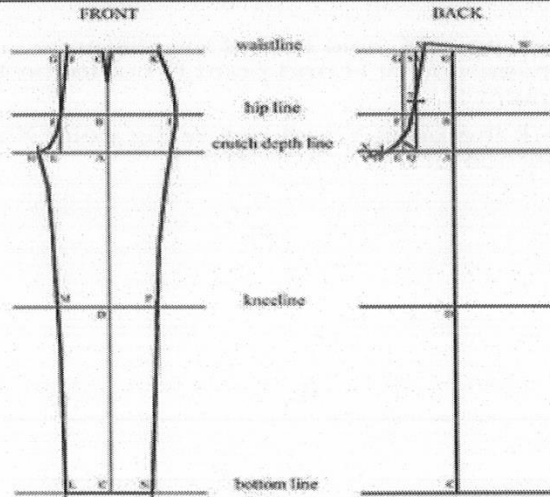
- Mark point X, one half of the distance between point H and point E but to the left of point H.
- Mark the point Y just below the point X at a distance of 0.5 cm (3/16 in.).

## STEP TEN



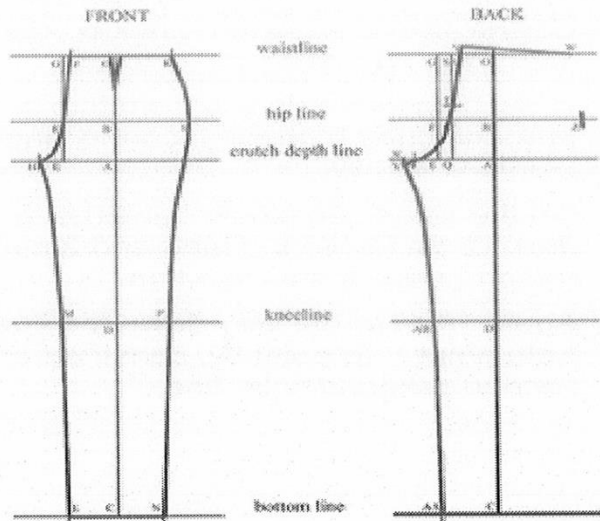
- Construct a diagonal segment (shown in green in the diagram) from point Q, of length 4 cm (1.6 in.) for waist sizes below 66 cm (26 in.). For waist sizes between:
  - 66 cm (26 in.) and 78 cm (30 in.), the diagonal would be 4.25 cm (1.7 in) long.
  - For sizes between 78 cm (30 in.) and 91 cm (36 in.), the diagonal would be 4.5 cm (1.8 in) long.
  - For sizes above 91 cm (36 in.), the diagonal would be 4.75 cm (1.9 in.) long.

## STEP ELEVEN



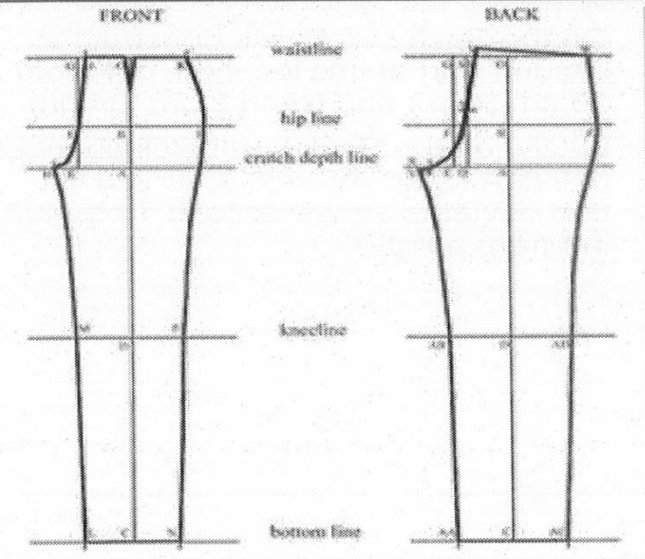
- Once the diagonal is constructed, draw a straight line from point T to point V, and a curved line from point Y to point T, passing through the end of the diagonal
- For back leg block, mark the point Z to the right of point R at a distance of one quarter of the hip measurement plus 1.5 cm (0.6 in.), along the hip line.

## STEP TWELVE



- On the Back Leg block, draw point AA at the same distance as the point L is from point C on the Front Leg block, plus 1 cm (3/8 in.).
- Mark point AB placed the same distance as the point M is from point D on the Front Leg block, plus 1 cm (3/8 in.).
- Connect points AA and AB with a straight line on the back leg block.
- Now, draw a curved line from point AB to point Y on the back leg block.
- Y will deviate outwards by about 0.5 cm (3/16 in.)

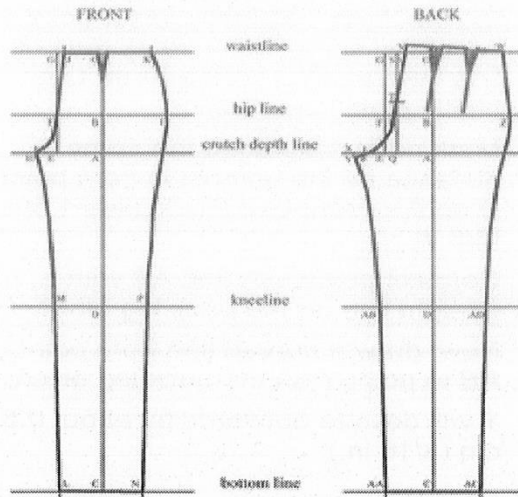
## STEP THIRTEEN



- On the Back Leg block, mark point AC placed at the same distance as point N is from point C on the Front Leg block, plus 1 cm (0.4 in.).
- Mark point AD positioned at the same distance as the point P is from point D on the Front Leg block, plus 1 cm (3/8 in.).
- Join points AC and AD on the back leg block with a straight line.
- Draw a curved line from point AD through its outer boundary at point Z and inward to point W.
- The deviation outwards at point Z should be about 0.5 cm (3/16 in.).

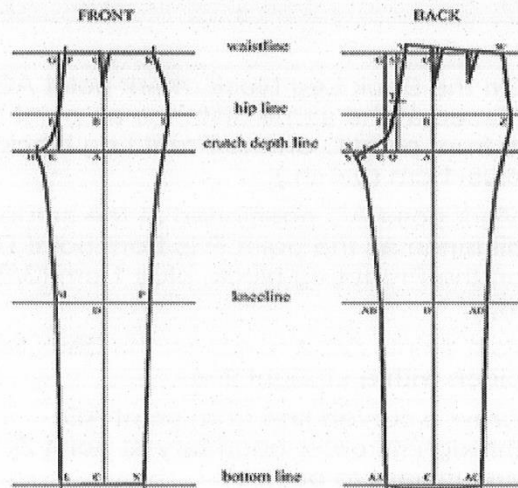


## STEP FOURTEEN



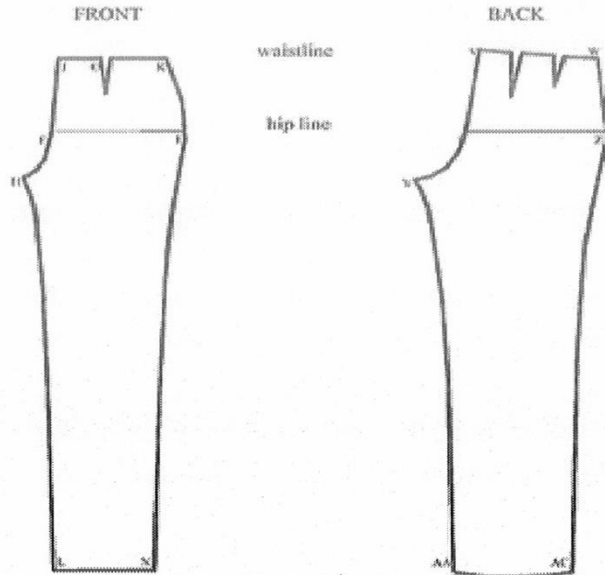
- On the Back Leg block, mark a point  $\frac{1}{3}$  of the distance from V to W.
- Draw a downwards line from this point perpendicular to the line connecting points V and W.
- On the Back Leg block, construct a dart 12 cm (4-5/8 in.) long and 2 cm (3/4 in.) wide at this location.
- Again  $\frac{1}{3}$ rd of the way down the line from point V to point W, construct a second perpendicular line.

## STEP FIFTEEN



- On the Back Leg block, construct a second dart at this location, of length 10 cm (4 in.) and width 2 cm (3/4 in.).
- Lastly, on the Back Leg block connect points AA and AC with a curved line that deviates downwards at 1 cm (3/8 in.) from point C

## STEP SIXTEEN



- Draw over the outlines of both leg panels to finish up
- Sew the back and front blocks together from H-L on the front, paired with Y to AA
- From K to N on the front, paired with W to AC on the back.
- The front blocks are then sewn together from J to H
- The back leg blocks are sewn together from V to Y.