17-10 Dilute the sugar solution to 100 ml.

17-11 Rinse a polarimeter tube twice with 5-10 ml of the sugar solution and then fill the tube with the same solution (see Step 17-1).

17-12 Repeat Steps 17-2 through 17-4.

17-13 Calculate the specific rotation $[\alpha]_D^T$ of the sugar solution from Equation 17-2, assuming that the temperature was 20°C.

17-14 Identify the unknown carbohydrate by comparing your calculated value of the specific rotation with the values given in Table 17-1.

B. Determination of Concentration

17-15 Rinse a polarimeter tube twice with water and then twice with 5-10 ml of one of the glucose unknown solutions.

17-16 Fill the polarimeter tube with that glucose unknown and repeat Steps 17-2 through 17-4.

17-17 Calculate the concentration of the unknown from the observed degrees of rotation and the specific rotation of glucose (Table 17-1).

C. Inversion of Sucrose

17-18 Upon hydrolysis of sucrose, equimolar amounts of glucose and fructose are produced. Since the specific rotation for fructose is much

Table 17-1 Specific Rotation

Carbohydrate	Specific Rotation*
L-arabinose	+104.5
D-fructose	− 92.0
D-galactose	+ 80.5
D-glucose	+ 52.7
Lactose	+ 52.3
Maltose	+136.0
D-mannose	+ 14.5
Raffinose	+105.2
L-rhamnose	+ 8.9
D-ribose	− 23.7
L-sorbose	− 43.4
Sucrose	+ 66.5
D-xylose	+ 19.0

*Equilibrium value; Equation 17-2; 20-25°C.