Section 3

Functions

You have already learned to use the arithmetic functions (+ , − , × , ÷) in both the stack and the addressable registers. You have also learned to move numbers among the calculator's registers and to enter and display data in both fixed and scientific format. To complete the subject of manual calculation, we will return to the non-arithmetic functions, things like sine, logarithm, square root . . .

Keys Introduced in this Section

ABS	→D.MS	INT	n!	R→P	1/x
COS	D.MS+	LN	→OCT	SIN	$\sqrt{x}$
DEG	GRD	LOG	RAD	TAN	y^x

These functions are both easy to learn and easy to use. In the introduction you learned to execute a function by pressing prefix key (f , f^{-1} , or g) and following it with the desired function key: you use the g prefix to calculate a function having a blue symbol, you use f to calculate a function having a gold symbol, and you use f^{-1} to calculate the inverse (or complement) of the function denoted by a gold symbol.

As might be expected, the x's and y's you see on the keyboard for these functions refer to the contents of the X- and Y-registers. For example, y^x means raise the number in the Y-register to the power of the number in the X-register.

Figures 3-1, 3-2, and 3-3 present a systematic review of which functions are available and the respective conditions that apply to each of them. To calculate a given function, the respective table entry shows any conditions that apply to the input value(s), the keys to use, and conditions applying to the result(s). If your need is to start calculation immediately, you might even end your study of functions with the tables, skipping the sample cases.

Functions Involving Angles

These functions are listed in figure 3-1. They include the trigonometric functions (*sine, cosine, tangent and their inverses*), the rectangular/polar conversions, the addition and subtraction of angles expressed in degrees, minutes, seconds, and conversions of angles expressed decimally to and from degrees, minutes, and seconds.

Angular Mode

Operations involving these functions assume the angles to be expressed in units of the prevailing *angular mode*, which is set to *decimal degrees* whenever the calculator is switched on. You can set the mode to *radians* or *grads* or *decimal degrees* by using the mode functions.

Angular Mode Functions

Keys	Function
g GRD	Set mode to grads
g RAD	Set mode to radians
g DEG	Set mode to degrees

400 grads = 360 degrees = 2 π radians

Keys to which Angular Mode applies:

SIN COS TAN R→P →D.MS

In the examples, the *degree* mode is assumed except as noted otherwise.

Degrees, Minutes, Seconds

You can convert from the decimal form of an angle to degrees, minutes, seconds. You can also do the inverse. When converting from the decimal form of the angle to degrees, minutes, seconds,