Press	See Displayed	
	0.25	Reciprocal of 4.
3 g 1/x	0.33	Reciprocal of 3.
+	0.58	Sum of reciprocals.
g 1/x	1.71	Answer: reciprocal of sum.

Sample Case: *Factorial.* Calculate the number of ways 6 people can line up for a photograph.

Press	See Displayed	
6 g n!	720.00	Answer.

Sample Case: *Exponential.* In the preceding section we calculated the successive terms of a geometric series to find that after 6 periods, $1000 invested at 10% grows to $1771.56. Using the y^x function, the same result is obtained by evaluating the following:

$$1000(1.10)^6$$

Press	See Displayed	
1000 ENTER↑	1000.00	Original amount.
1.10 ENTER↑ 6		
g y^x	1.77	$(1.10)^6$
×	1771.56	Answer.

Section 4

Programming

You've finally reached the section that describes the reason you probably bought an HP-65 in the first place – programming! But relax. The keyboard programming language used by the HP-65 is not complicated or difficult to understand. By taking your time and working through the sample programs as you read, you'll progress from writing simple programs like the one you wrote in the introduction to the advanced programs found in the application pacs.

What Is a Program?

A program is nothing more than a sequence of keystrokes stored in the calculator and executed automatically with the press of a button—one keystroke replacing many! In the previous sections of this handbook, whenever an example was done, *you*, the operator, were programmed. You were asked to press keys in a given sequence to obtain a particular result. In most cases, if the sequence was not followed exactly, the result was not correct. Similarly, in a program, the calculator is given a sequence of keystrokes. The calculator "memorizes" the keystroke sequence and then can execute it automatically any number of times, and much faster than you could yourself!

What key sequence do you give the calculator? The bulk of every program you write will be the same keys you would press manually in RUN mode to solve your problem. In fact, from the entire keyboard there are three key sequences that cannot be given to the calculator for later execution:

SST, f PRGM, g DEL

These three key sequences are *the only active operations in W/PRGM mode.* All other keys pressed in W/PRGM mode are stored in program memory to be executed later.

As you know, in RUN mode pressing any key produces an immediate result. However, every operation in RUN mode can be generated in two ways: from the keyboard or from program memory (*if the keys have first been stored in program memory*).