

7.2 PROJECT

THE ISLAND OF SIX SYMBOLS

In a remote part of the Ocean of Knowledge lies the Island of Six Symbols. The native inhabitants of the island have a nomadic disposition, and directional words and symbols have come to be an important part of their culture. All forms of written communication and mathematical calculation rely on them. In their writing system, there are only six numerals. There are two versions of these six numerals—one for formal documents and one for normal use.

Formal						
Normal	→	↓	↖	←	↗	↑

- From archeological evidence, we have a partial table of the numeral system. Determine the pattern and fill in the blank cells to complete the table. Does this appear to be a positional system?

1		7	↑↑	13		19		25		31		37	
2	↓	8	↑↓	14		20		26		32		38	
3		9		15	↓→	21		27		33		39	
4		10		16	↓←	22		28		34		40	
5		11		17		23	→↗	29		35		41	
6	↖	12		18		24	→↖	30		36		42	

- Determine the correspondence between these symbols and Hindu-Arabic numerals

Formal						
Normal	→	↓	↖	←	↗	↑
Hindu-Arabic						

- Calculate and express the following in both the Six Symbol system and the decimal system. Write the answer using formal numerals.

-  + 
-  + 
-  × 
-  × 

- Does the system have a symbol for zero? If not, create a potential symbol for zero and describe the benefits that can be gained by introducing symbols for zero for both formal and normal use.