

# COS126 TOY Programming Activity Solutions: Book-site 5.2-5.4

- Group Activity:

- Leader
- Recorder
- Reporter

1. TOY has **16** registers called R[0] thru R[F]
2. Which register is special? **R[0]** How? **It is ALWAYS set to zero.**
3. TOY has **256** memory locations, addressed **00** thru **FF**.
4. Which memory address is special? **FF** How? **It is reserved for standard in and standard out.**
5. TOY has **16** op codes, **0** thru **F**.
6. TOY has one PC. What does PC mean? **program counter**
7. TOY code is usually written in (choose one)  
binary **HEX** decimal java
8. Fill in the missing Code, Pseudo-code, Address or Comment.

Address	Code	Pseudo-code	Comment
10:	7101	R[1] <- 01	R[1] holds the constant 1
11:	4222	R[2] <- R[2]^R[2]	Initialize R[2] to zero
12:	7301	R[3] <- 01	Initialize R[3] to 1
13:	85FF	R[5] <- mem[FF]	Read N from Stdin
14:	1423	R[4] <- R[2]+R[3]	We'll keep a sum in R[4]
15:	1203	R[2] <- R[0]+R[3]	Copy R[3] over to R[2]
16:	1304	R[3] <- R[0]+R[4]	Copy R[4] over to R[3]
17:	2551	R[5] <- R[5]-R[1]	Subtract 1 from N
18:	D514	if(R[5]>0) pc <-14	N > 0? Do it again.
19:	94FF	mem[FF] <- R[4]	Send the sum in R[4] to Stdout
1A:	0000	halt	All done!