

3. This question is about memory protection using *base* and *limit* values. For every memory access, the CPU adds the base to the (logical) address, ensures that the result is less than the *limit*, and then uses this new (physical) address to access memory.

Below is a diagram of the current state of memory. Use it to answer the following questions.

location	value
0	17
1	64
2	21
3	38
4	-1
5	2
6	99
7	32
8	76

Process 1 has *base*=2 and *limit*=6.

Process 2 has *base*=5 and *limit*=8.

- If process 1 tries to read from address 3, what is the result?
- If process 1 tries to read from address 0, what is the result?
- If process 2 tries to read from address 3, what is the result?
- Are processes 1 and 2 properly isolated from one another?
- Which of the shown memory locations are *free*? (They don't belong to any process.)
- Propose a new base and limit for processes 1 and 2 so that they are isolated and the free space is *contiguous*.