Lam Book Problems
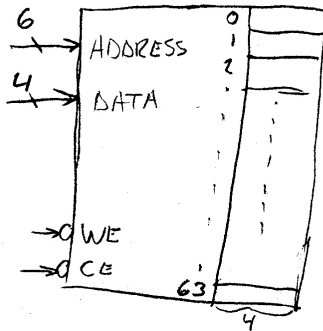
6.17
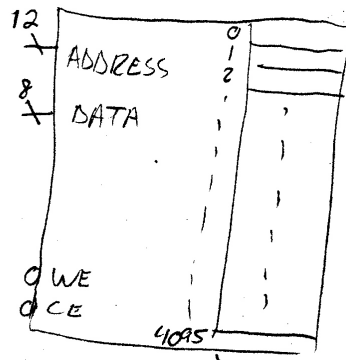

a)

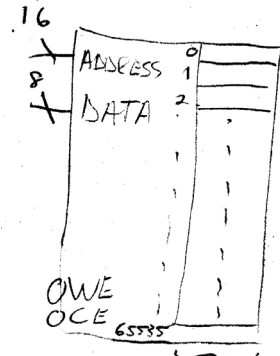$64 \times 4 = 2^6 \times 4$

$n = 6$

$m = 4$

$2^n - 1 = 63$

b)

4096×8

$2^{12} \times 8$

$n = 12$

$m = 8$

c)

$64k \times 8$

$2^{16} \times 8$

$n = 16$

$m = 8$

6.18)

a) 7 address 8 data

$2^7 \cdot 8 = \boxed{128 \times 8} = 1k = \boxed{1024 \text{ bits}}$
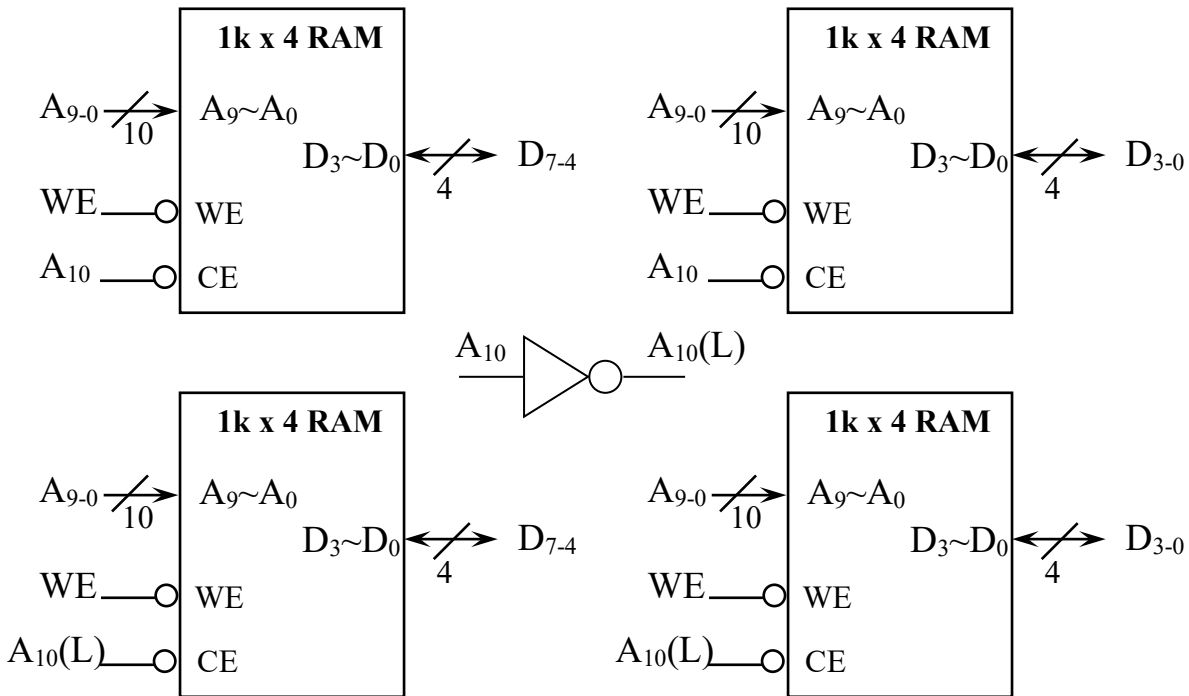
b) 14 address 4 data

$2^{14} \cdot 4 = \boxed{16k \times 4} = 64k = \boxed{65536 \text{ bits}}$

c) 10 address 16 data

$2^{10} \cdot 16 = \boxed{1k \times 16} = 16k = \boxed{16384 \text{ bits}}$

6.19 This is a 2k x 8 RAM.

Question 1: How would you add a CE for the <u>entire circuit</u>?

Question 2: What if one you wanted a 2k x 8 memory module that had a 1k x 8 RAM and a 1k x 8 ROM? How would you be assured that no data collisions would occur?

6.29   Construct a 128x8 ROM:

a) 8 inputs 6 outputs

no, with a 128 RAM, the max # of input lines is 7. This one has 8 input lines required.

b) 6 inputs, 8 outputs

yes, can handle both inputs and outputs.

6.30

6.30