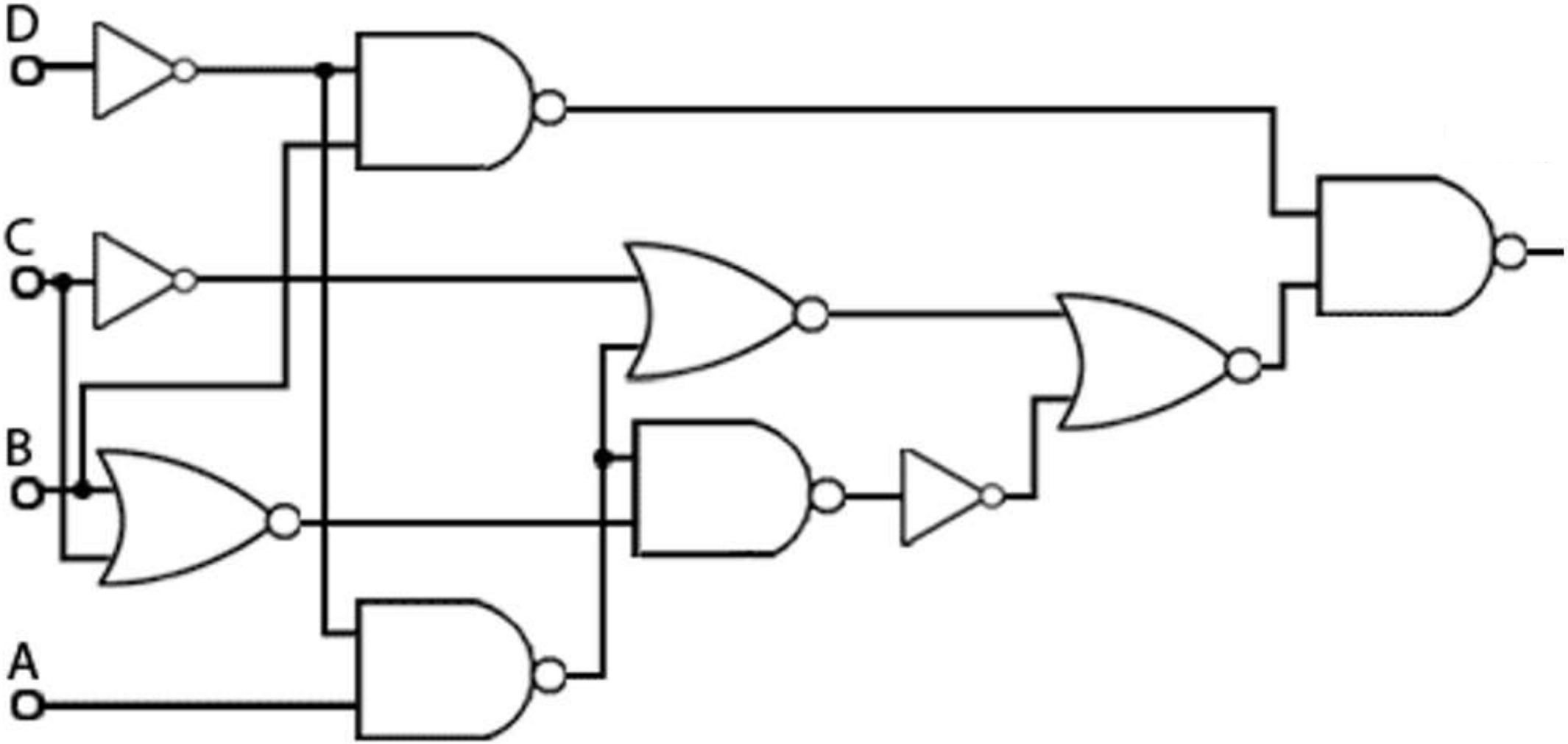
COS 284 TUTORIAL 5

SEMESTER TEST 2 RECAP

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT



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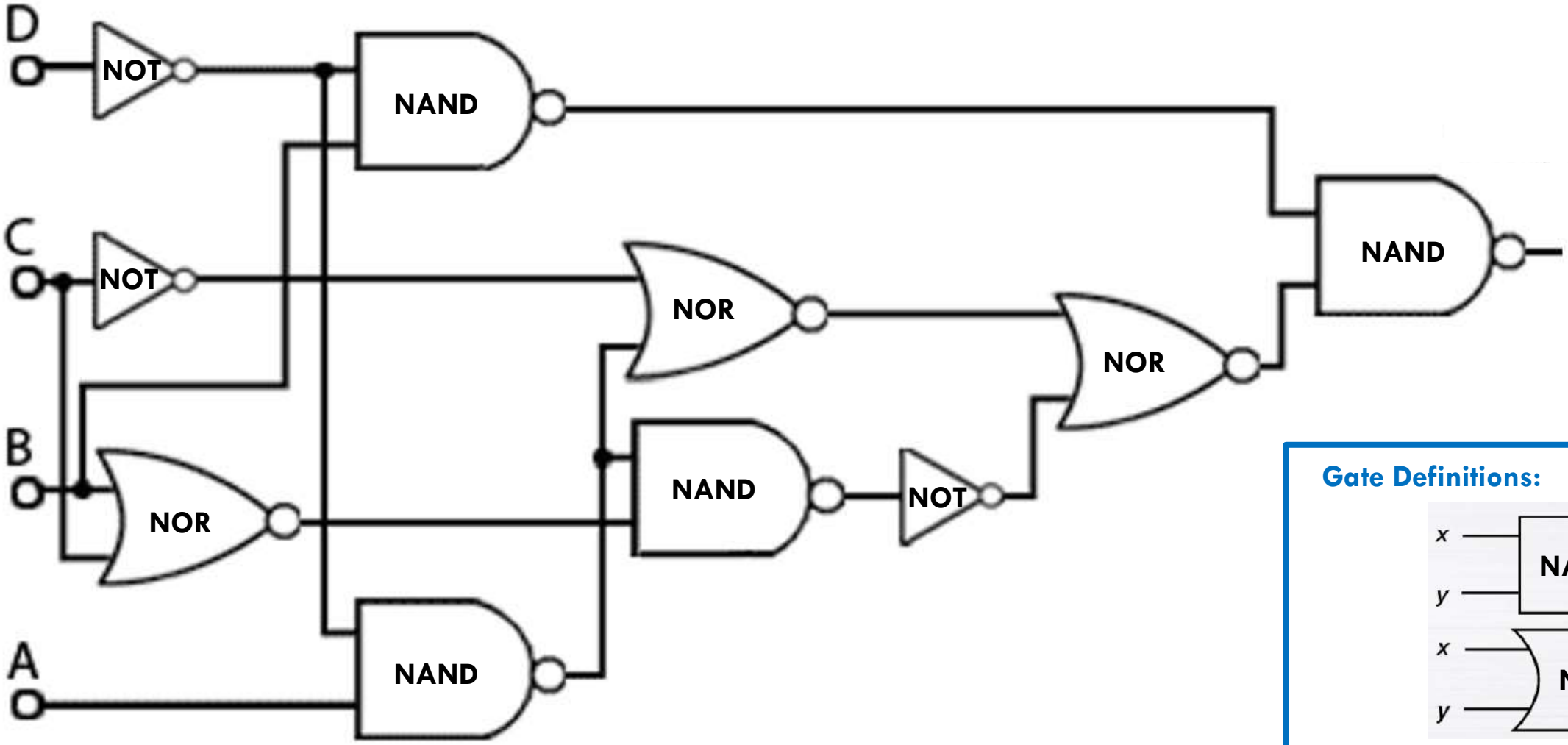
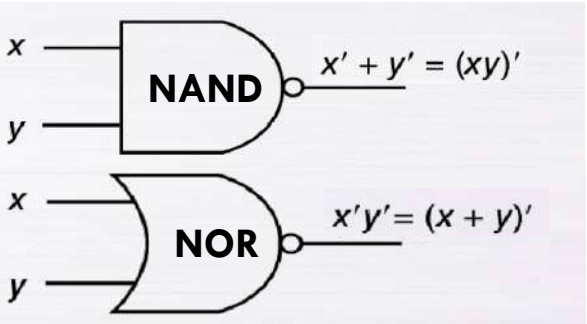


Gate Definitions:



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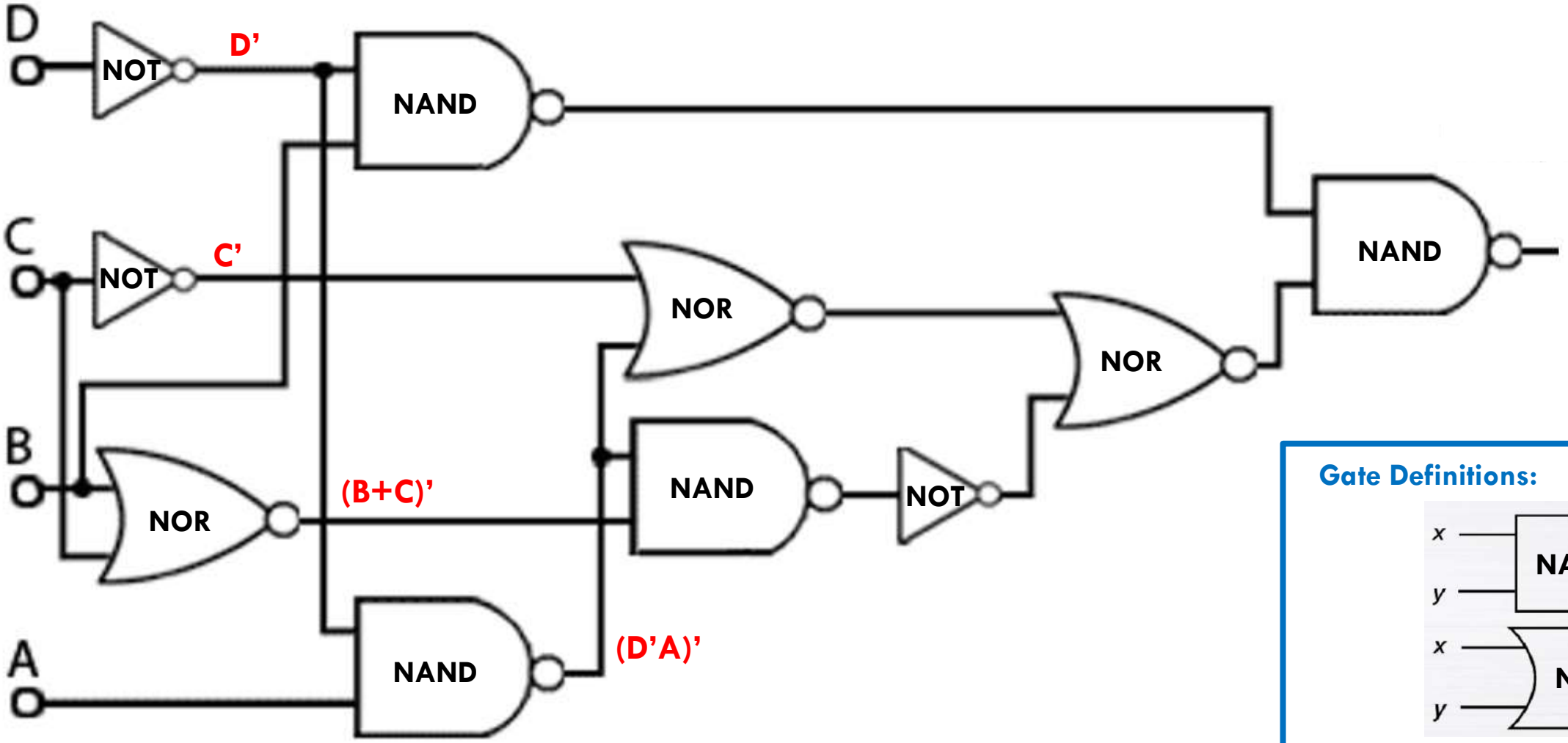
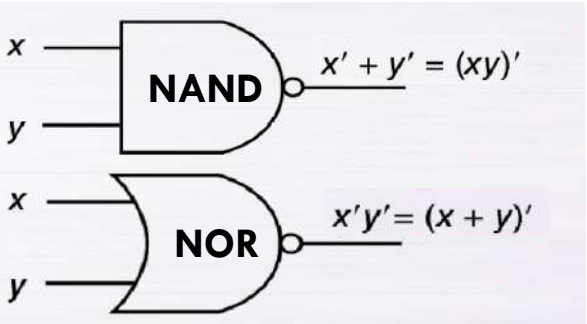


Gate Definitions:



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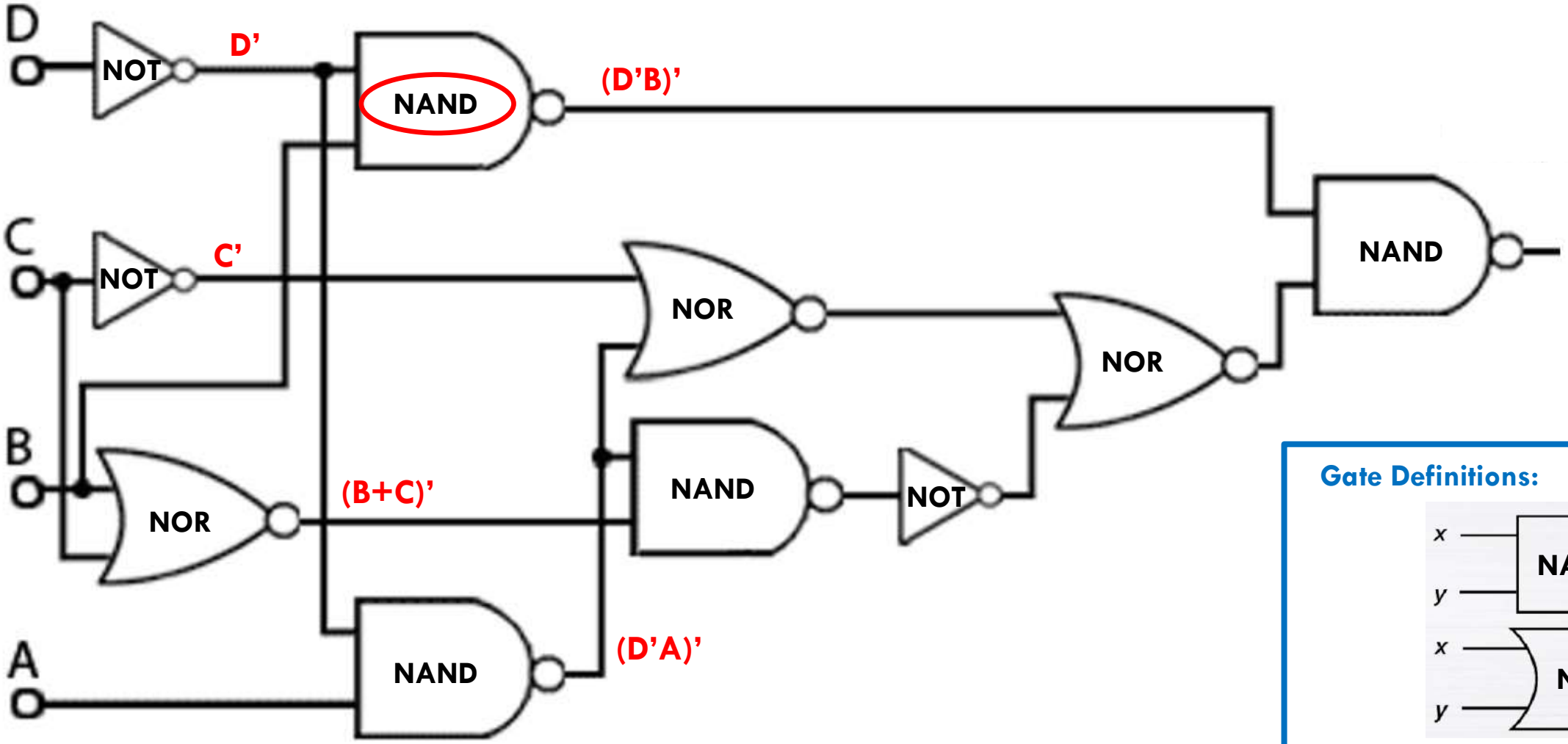
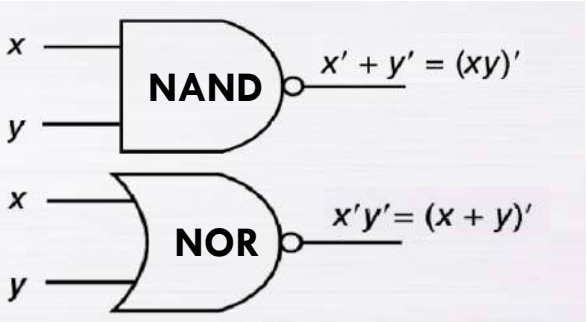


Gate Definitions:



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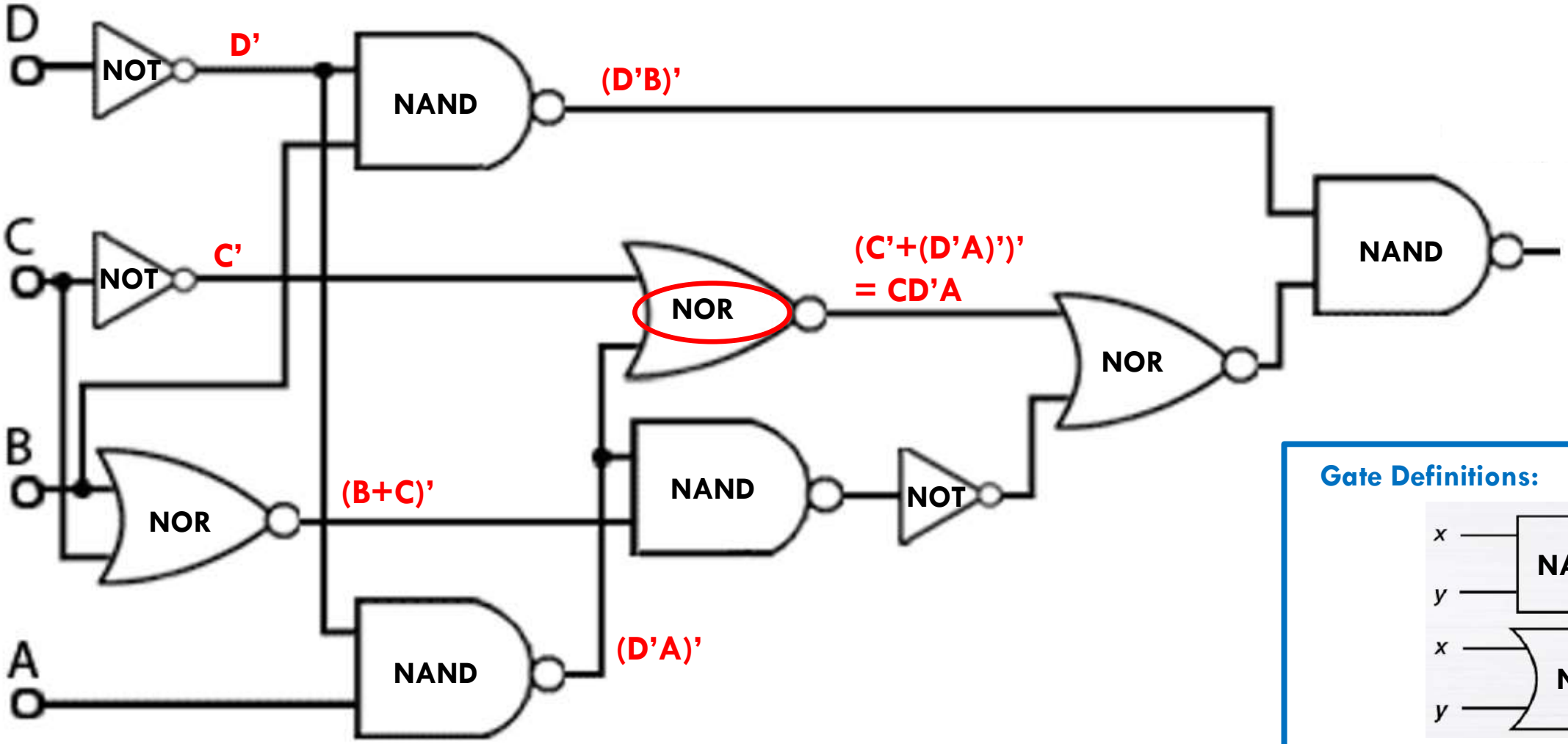
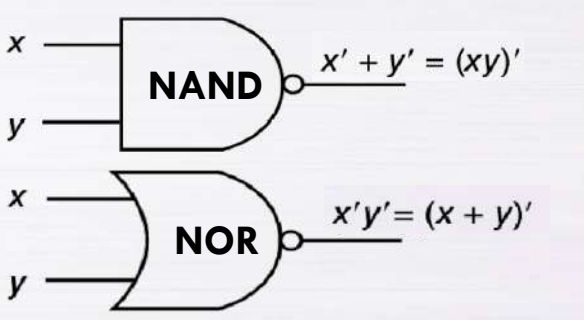


Gate Definitions:



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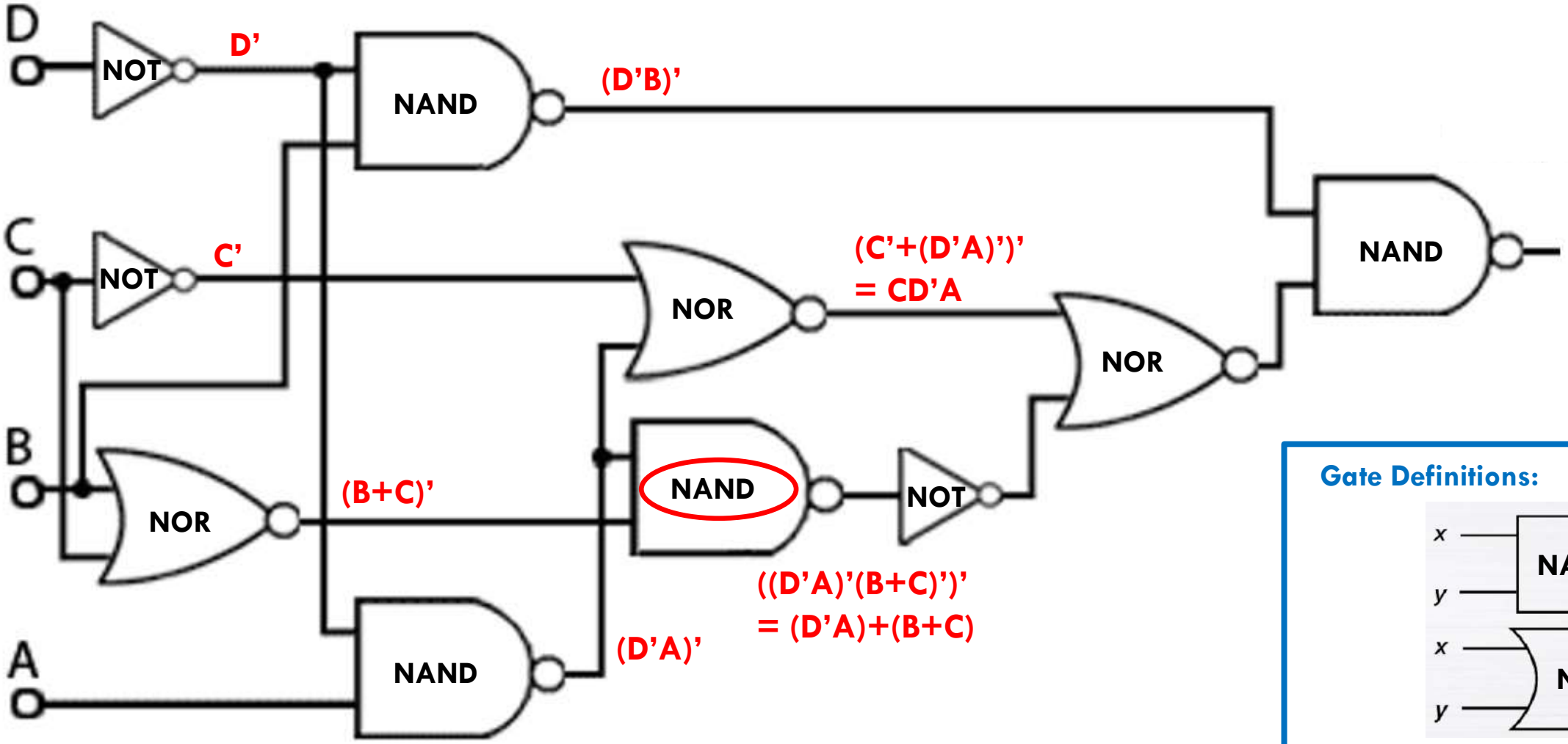
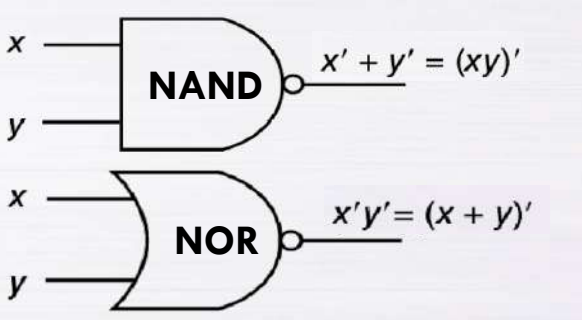


Gate Definitions:



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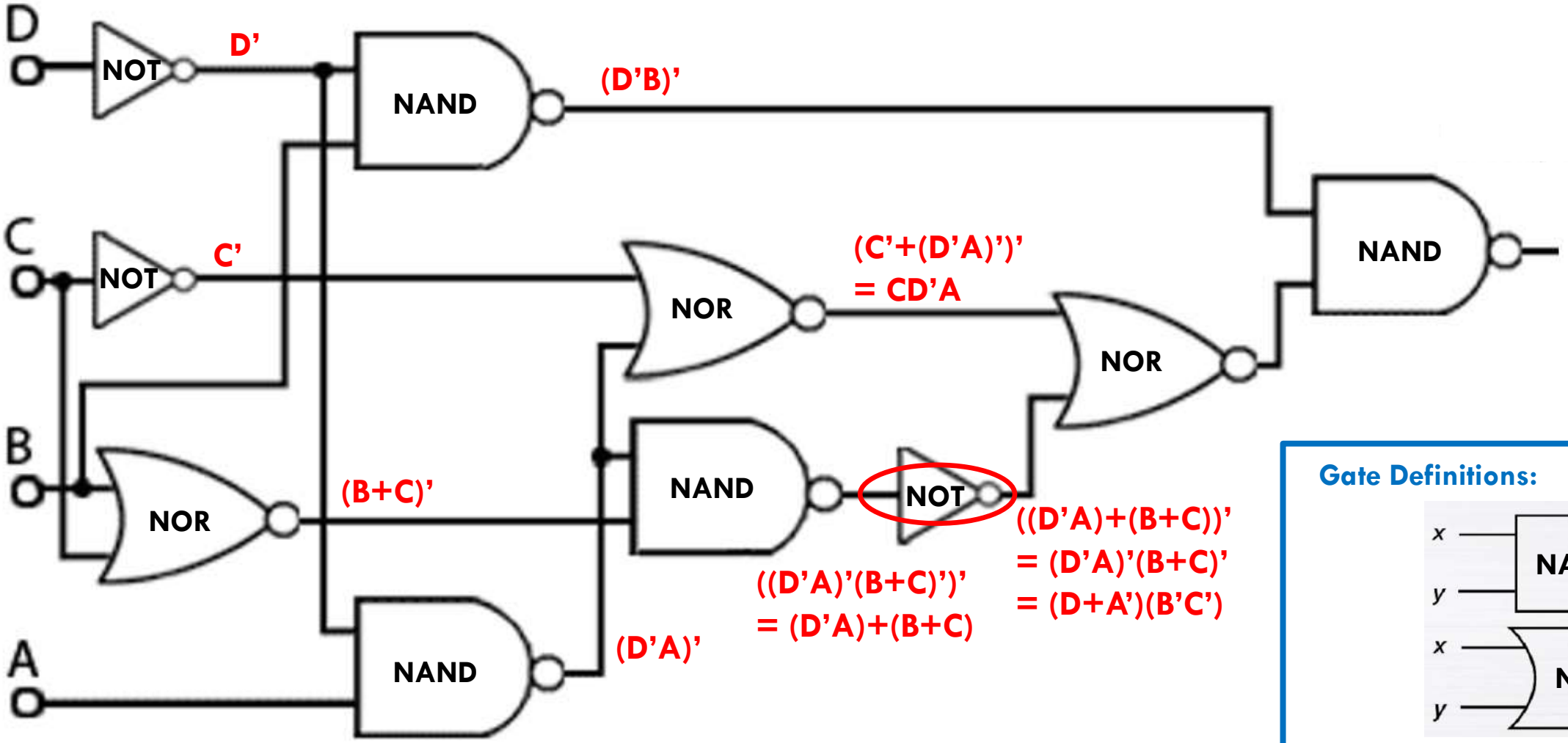
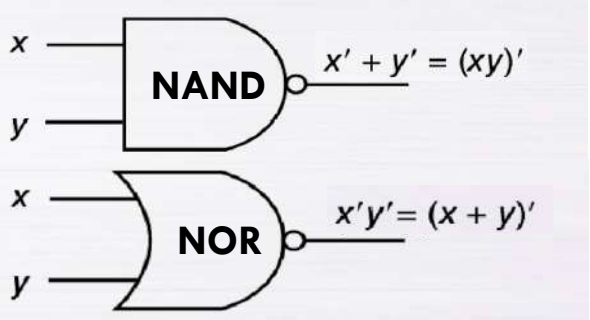


Gate Definitions:



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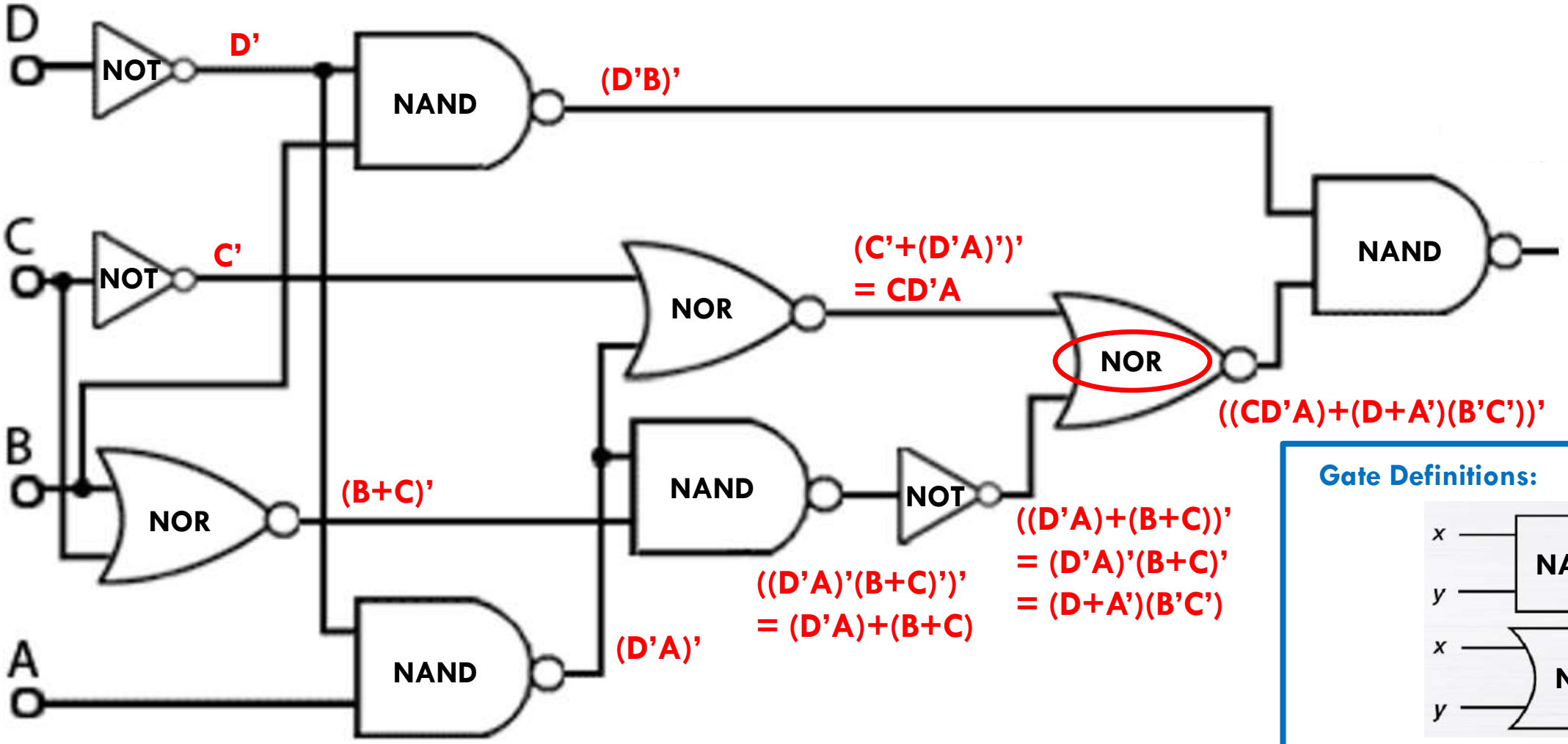
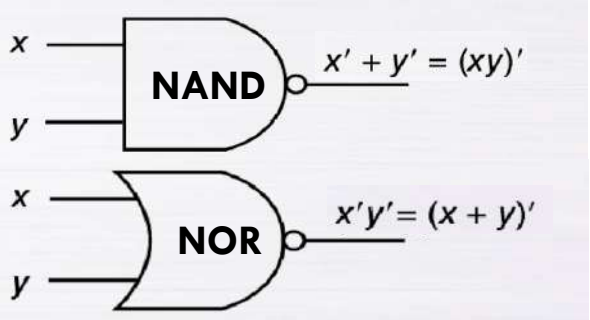


Gate Definitions:



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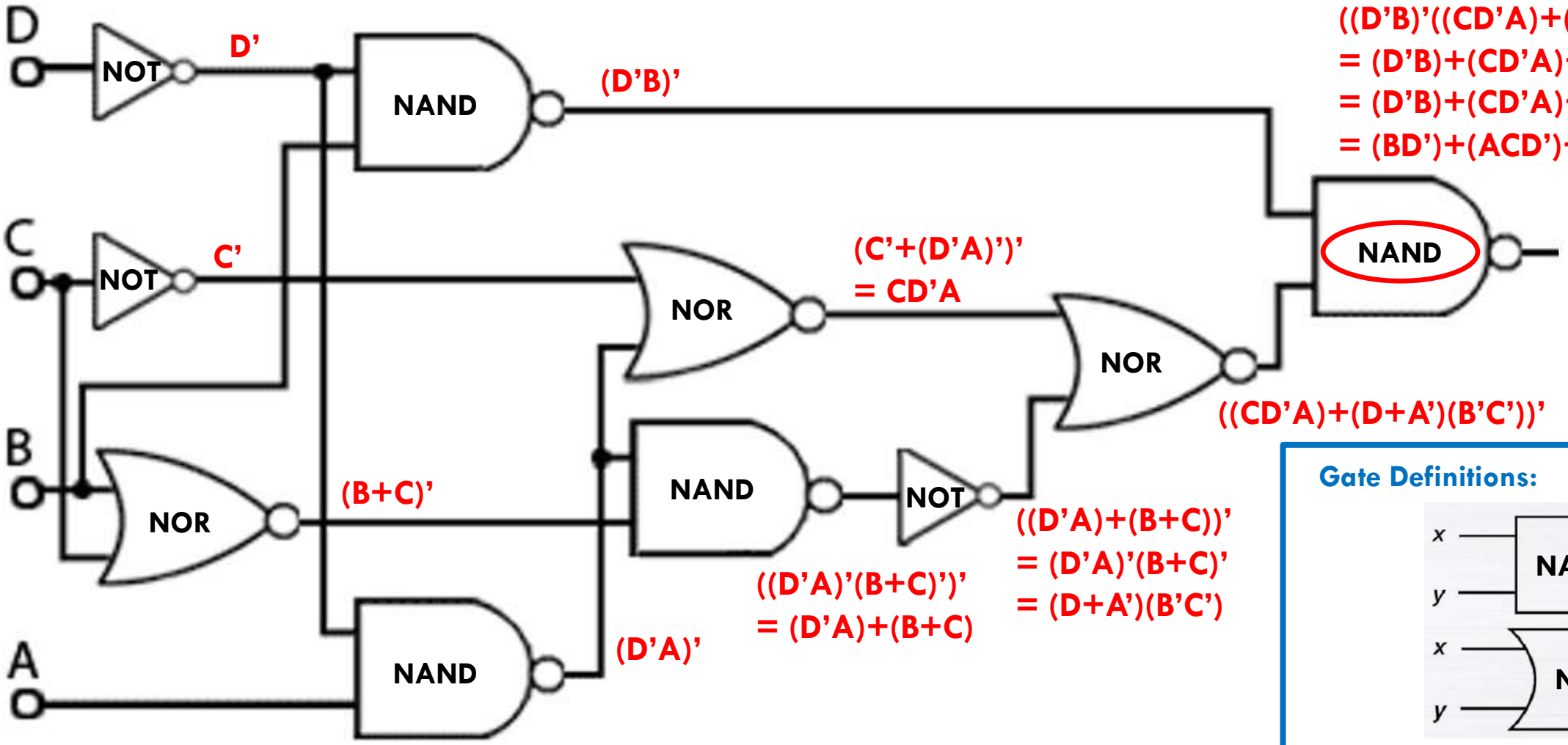
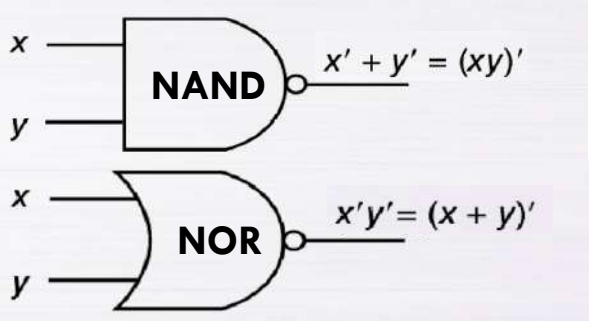


Gate Definitions:



COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00				
01				
11				
10				

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00				
01	1			1
11	1			1
10				

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00				
01	1			1
11	1			1
10				1

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00		1		
01	1			1
11	1			1
10		1		1

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00	1	1		
01	1			1
11	1			1
10		1		1

COMPLETE THE KARNAUGH MAP SUCH THAT IT REPRESENTS THE FUNCTION OF THE GIVEN CIRCUIT

(BD') + (ACD') + (B'C'D) + (A'B'C')

AB \ CD	00	01	11	10
00	1	1	0	0
01	1	0	0	1
11	1	0	0	1
10	0	1	0	1

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **IMMEDIATE ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Immediate addressing is where the data is part of the instruction.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **IMMEDIATE ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Immediate addressing is where the data is part of the instruction.

Answer: 66

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **DIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 12
Index register : 34
```

Definition:

Direct addressing is where the address of the data is given in the instruction.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **DIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

Base register : 12
Index register : 34

Definition:

Direct addressing is where the address of the data is given in the instruction.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **DIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 12
Index register : 34
```

Definition:

Direct addressing is where the address of the data is given in the instruction.

Answer: b6

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indirect addressing gives the address of the address of the data in the instruction.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indirect addressing gives the address of the address of the data in the instruction.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDIRECT ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indirect addressing gives the address of the address of the data in the instruction.

Answer: ff

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDEXED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indexed addressing uses a register (implicitly or explicitly) as an offset, which is added to the address in the operand to determine the effective address of the data.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDEXED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indexed addressing uses a register (implicitly or explicitly) as an offset, which is added to the address in the operand to determine the effective address of the data.

Load Address: 66+12 = 78

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **INDEXED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Indexed addressing uses a register (implicitly or explicitly) as an offset, which is added to the address in the operand to determine the effective address of the data.

Load Address: 66+12 = 78

Answer: 27

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **BASED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Based addressing is similar except that a base register is used instead of an index register.

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **BASED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Based addressing is similar except that a base register is used instead of an index register.

Load Address: 66+34 = 9A

A COMPUTER EXECUTES THE INSTRUCTION **LOAD 66**. WHAT DATA WILL BE LOADED INTO THE ACCUMULATOR IF **BASED ADDRESSING** IS USED?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
```

Definition:

Based addressing is similar except that a base register is used instead of an index register.

Load Address: 66+34 = 9A

Answer: 6b

SUPPOSE THE COMPUTER EXECUTES **ADD R1** USING **REGISTER ADDRESSING**. WHAT DATA VALUE WILL BE ADDED TO THE ACCUMULATOR?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Definition:

Register addressing is where the data is located in a register.

SUPPOSE THE COMPUTER EXECUTES **ADD R1** USING **REGISTER ADDRESSING**. WHAT DATA VALUE WILL BE ADDED TO THE ACCUMULATOR?

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Definition:

Register addressing is where the data is located in a register.

Answer: 01

SUPPOSE THE COMPUTER EXECUTES **ADD R1** USING **REGISTER-INDIRECT ADDRESSING**. WHAT IS THE **EFFECTIVE ADDRESS OF THE OPERAND THAT WILL BE ADDED TO THE ACCUMULATOR?**

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Definition:

Register indirect addressing uses a register to store the address of the data.

SUPPOSE THE COMPUTER EXECUTES **ADD R1** USING **REGISTER-INDIRECT ADDRESSING**. WHAT IS THE **EFFECTIVE ADDRESS OF THE OPERAND THAT WILL BE ADDED TO THE ACCUMULATOR?**

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Definition:

Register indirect addressing uses a register to store the address of the data.

SUPPOSE THE COMPUTER EXECUTES **ADD R1** USING **REGISTER-INDIRECT ADDRESSING**. WHAT IS THE **EFFECTIVE ADDRESS OF THE OPERAND THAT WILL BE ADDED TO THE ACCUMULATOR?**

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Definition:

Register indirect addressing uses a register to store the address of the data.

Answer: 01

REMARK ON REGISTER-INDIRECT ADDRESSING

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	03	0f	a8	4f	7d	f6	40	93	38	8c	c7	b4	70	82	3e	a9
1_	e4	e4	f3	32	b9	34	69	46	a7	0f	49	4d	c1	c9	77	aa
2_	e4	c3	41	60	12	51	77	09	0d	7b	ad	8f	ac	5c	d1	7b
3_	b0	de	87	53	7a	6a	be	82	72	b8	fd	73	7c	f0	a5	9d
4_	e1	ed	0e	0e	66	d8	ad	eb	c2	ef	0b	1b	8b	23	23	8b
5_	95	aa	9f	11	d6	66	57	f1	f6	dc	6e	bc	e7	b5	2b	2c
6_	65	8c	34	a1	eb	26	b6	d6	10	74	8e	1b	08	e6	66	49
7_	19	63	0d	41	bd	e5	79	6d	27	d3	c8	f8	d9	84	4c	fd
8_	d0	fb	ea	b3	e3	75	5a	7d	f7	8a	3e	52	da	b6	0c	79
9_	d9	87	72	c5	93	ec	03	4a	65	04	6b	5d	94	32	f4	52
A_	ba	e6	96	ef	63	dd	f2	c0	3c	53	02	00	5a	9d	9f	0d
B_	fa	0e	f1	77	1f	f6	ff	50	6c	1b	b0	8b	48	f9	d2	bc
C_	ec	64	7f	fc	8e	7a	e0	9b	83	6e	2f	2c	60	23	30	8e
D_	1a	fa	e1	6b	eb	10	b6	53	f2	85	db	e4	48	e9	aa	67
E_	ef	36	db	62	51	d8	7a	d4	a0	b4	04	31	e0	1b	83	7e
F_	8c	e0	76	93	8d	ab	b0	6a	96	fe	a3	ba	eb	e4	a7	5b

```
Base  register : 34
Index register : 12
R0             : 10
R1             : 01
R2             : AB
R3             : 22
```

Correct Definition:

Register indirect addressing uses a register to store the address of the data.

Faulty Definition on Lecture Slides:

~~*Register indirect addressing* uses a register to store the address of the address of the data.~~

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC :

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 2

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 2

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 4

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 6

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 8

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 0

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 0

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 1

CONSIDER THE FOLLOWING MARIE PROGRAM. WHAT WOULD THE OUTPUT BE IF THE **USER ENTERED 2**?

Instruction	Meaning
Load X	Load contents of address X into AC.
Store X	Store the contents of AC at address X.
Add X	Add the contents of address X to AC.
Subt X	Subtract the contents of address X from AC.
Input	Input a value from the keyboard into AC.
Output	Output the value in AC to the display.
Halt	Terminate program.
Skipcond	Skip next instruction on condition.
Jump X	Load the value of X into PC.

Skipcond 000 : skip next instruction if AC is negative

Skipcond 400 : skip next instruction if AC = 0

Skipcond 800 : skip next instruction if AC is positive

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 2
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

AC : 1

WHAT IS THE HEXADECIMAL VALUE STORED AT ADDRESS 103?

Hex	Instruction	Meaning
1	Load X	Load contents of address X into AC.
2	Store X	Store the contents of AC at address X.
3	Add X	Add the contents of address X to AC.
4	Subt X	Subtract the contents of address X from AC.
5	Input	Input a value from the keyboard into AC.
6	Output	Output the value in AC to the display.
7	Halt	Terminate program.
8	Skipcond	Skip next instruction on condition.
9	Jump X	Load the value of X into PC.

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

WHAT IS THE HEXADECIMAL VALUE STORED AT ADDRESS 103?

Hex	Instruction	Meaning
1	Load X	Load contents of address X into AC.
2	Store X	Store the contents of AC at address X.
3	Add X	Add the contents of address X to AC.
4	Subt X	Subtract the contents of address X from AC.
5	Input	Input a value from the keyboard into AC.
6	Output	Output the value in AC to the display.
7	Halt	Terminate program.
8	Skipcond	Skip next instruction on condition.
9	Jump X	Load the value of X into PC.

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

WHAT IS THE HEXADECIMAL VALUE STORED AT ADDRESS 103?

Hex	Instruction	Meaning
1	Load X	Load contents of address X into AC.
2	Store X	Store the contents of AC at address X.
3	Add X	Add the contents of address X to AC.
4	Subt X	Subtract the contents of address X from AC.
5	Input	Input a value from the keyboard into AC.
6	Output	Output the value in AC to the display.
7	Halt	Terminate program.
8	Skipcond	Skip next instruction on condition.
9	Jump X	Load the value of X into PC.

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

WHAT IS THE HEXADECIMAL VALUE STORED AT ADDRESS 103?

Hex	Instruction	Meaning
1	Load X	Load contents of address X into AC.
2	Store X	Store the contents of AC at address X.
3	Add X	Add the contents of address X to AC.
4	Subt X	Subtract the contents of address X from AC.
5	Input	Input a value from the keyboard into AC.
6	Output	Output the value in AC to the display.
7	Halt	Terminate program.
8	Skipcond	Skip next instruction on condition.
9	Jump X	Load the value of X into PC.

Hex address	Label	Instruction
100	Read	Input
101		Store W
102	Quadruple	Add W
103		Add W
104		Add W
105	Compare	Subt X
106		Skipcond 400
107		Jump Else
108	Match	Load Y
109		Output
10A		Halt
10B	Else	Load Z
10C		Output
10D		Halt
10E	W	Dec 0
10F	X	Dec 8
110	Y	Dec 1
111	Z	Dec 0

Answer : opcode address : 310E