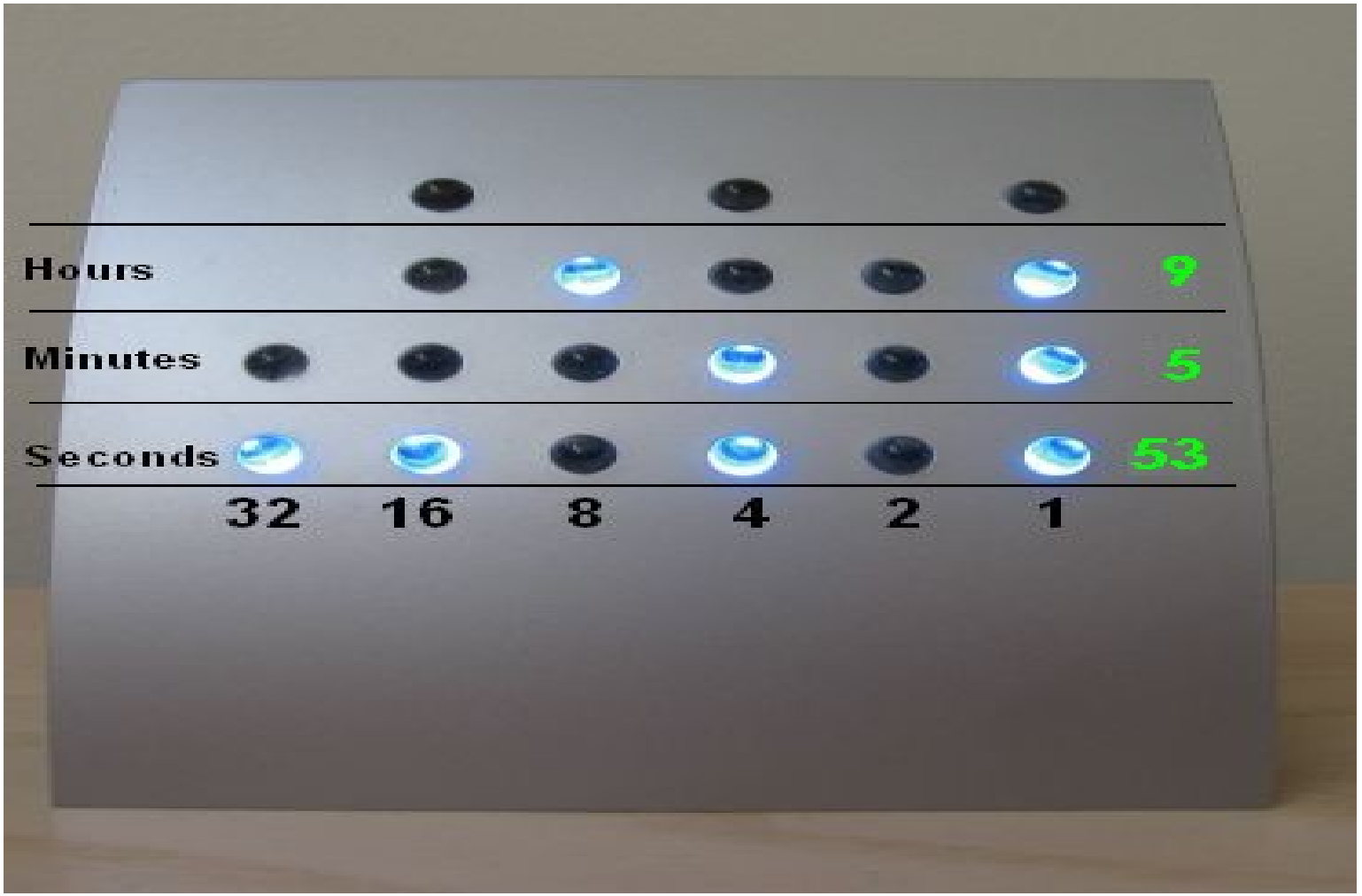
KAPLAN INTERNATIONAL PATHWAYS

THEME 02: NUMBER SYSTEMS

Worksheet 7– Binary Addition and Subtraction

PhD. Ruperto P. Bonet Chaple

BINARY NUMBER SYSTEM



What is the binary representation of 5?

BINARY ARITHMETIC OPERATIONS

BINARY ADDITION

Complete the blanks with numbers on the following table

a) Identify analogies and differences

b) Write the binary addition rules based on your experience

BINARY ADDITION RULES

BINARY	DECIMAL
1) 1 0 1 + 1 0 0	5 0 5 + 5 0 0
2) 0 ▯ 1 +0 0 1 1	0 9 5 +0 0 5
3) 1 1 + ▯ 1 0	5 5 + 5 1 0

BINARY ADDITION RULES

BINARY	DECIMAL
4) 1 0 1	5 0 5
+ 1 1 1	+ 5 9 5
5)	
1 1 1	9 5 5
+ 1 1	+ 0 5 5
6)	
1	5
1	5
+ 1	+ 5

BINARY ADDITION RULES

0 + 0 =0

1 + 0 =1

1 + 1 = 0, carry 1

EXERCISE: WRITE THE SUBTRACTION RULES

BINARY SUBTRACTION RULES

0 – 0 = 0

1 - 0 = 1

1 – 1 = 0

0 - 1 = 1, Borrow 1

BINARY SUBTRACTION RULES

0 – 0 = 0

1 - 0 = 1

1 – 1 = 0

0 - 1 = 1, Borrow 1

BINARY	DECIMAL
1 0	1 0
- 0 1	- 0 5

CONCLUSIONS

We have learnt BINARY ADDITION AND SUBTRACTION RULES INCLUDING THE NEW RULES:

1 + 1= 0, CARRY 1

0 – 1=1, BORROW 1

ON THE NEXT EXERCISES YOU WILL GET THE ABILITY WITH THESE ARITHMETICS OPERATIONS