8530 – binary.

2	8530	→ 0
2	4265	→ 1
2	2132	→ 0
2	1066	→ 0
2	533	→ 1
2	266	→ 0
2	133	→ 1
2	66	→ 0
2	33	→ 1
2	16	→ 0
2	8	→ 0
2	4	→ 0
2	2	→ 0
	1	→ 0

10000101010010

6) 1 0 1 0 1 0 1 1 0 1 0 1 0 0 1 0 1 1 1 0

(1, 3, 5) 1 1 1 1 1 1 1 1 0 1 0 1 0 0 1 0 1 1

(8, 10, 12) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 0 1 1

(13, 15, 19)

1 1 1 ! 1. 1 1 11 1 1 1 1 1 1 1 1 1 1

min no. of moves = 3

sequence → Root (0)

Right (1)

left (0)

Right (1)

Right (1)

Right (1)

Has 4 is → even number

5) Binary tree

1 → move to right.

0 → move to left.

given, 10111

root, Root (R)

right R

left L

right → 3 R

R

R

4) 1001 — 9   1111 — 15

1100 — 12.   1101 — 13

1110 — 14.   1011 — 11

1010 — 10   0110 — 6

0111 — 7   0100 — 4

0101 — 5   0010 — 2

0011 — 3   0001 — 1.

First divide into two parts and weigh using the digital balance. Keep on doing it till left with the heaviest weight.

10) rem = (rem × 2 + current bit) mod 7.

First rem = 0

For 1st bit

rem = (0×2+1) mod 7 = 1.

2nd rem = (1 × 2 +1) mod 7 = 3

3rd rem = (3× 2 +0) mod 7 = 6

4th rem = (6× 2 +1) mod 7 = 13 mod 7 = 6

5th rem = (6 × 2 + 0) mod 7 = 12 mod 7 = 5

6th rem = (5× 2 +1) mod 7 = 11 mod 7 = 4

7th rem = (4×2 +0) mod 7 = 8 mod 7 = 1

Final rem = 1

∴ Final rem is not equal to 0 the binary number is not divisible by 7

7) Given → 1011 0 | 111 0 1 is not

Palindrome because reversed is

not equal to original number.

if we flip. 4(0) to 0 1(or)

5(1) to 0 we get

a Palindrome. → 10111, 111 0,

→ 1101100110,

9) Highest XOR values for →

000000 & 111111

→ without having more than 3 consecutive

is → 011011, 100110