

Examrace

Binary to Decimal Conversion Based on New Paper 1 Syllabus for 2021

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1's & 2's Complement

Fast Speed

Convert to Binary: 2432 (Unsigned)

1	1	1	1	1	1	1	1	1	1	1	1
2048	1024	512	256	128	64	32	16	8	4	2	1

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Ans: 100110000000

2048,256, 128

Check if number is even its lsb would be 0 else would be 1

Convert to Decimal: 11011001 (Unsigned)

Ans: 11011001 = 217

2048,256, 128

Check if number is even its lsb would be 0 else would be 1

The Negatives! !

1. Signed Magnitude (5 bit machine)
2. 1's Complement (5 bit machine)
3. 2's Complement (5 bit machine)

-5 Singed magnitude- 10101,1's Complement: 11010,2's complement: 11011.

10101 signed magnitude:-5,1's Complement:-10,2's Complement -11

2's Complement = 1's Complement + 1

Negative numbers always have 1 in MSB!

In all numbers + ve remain the same as unsigned

The Negatives: Signed Magnitude

-5 Singed magnitude: 10101

-15 Singed magnitude: 11111

11011:-11

01011: 11 the Negatives: 1's Complement

-5 1's Complement: 11010 (Need machine

width- guess from choices)

-15 1's Complement: 10000 (More width would produce more 1's)

11011:-4 (MSB is one so negative number, complement and find answer) If no 1 in MSB then simply write 11

01011: 11 (Same as unsigned)

The Negatives: 2's Complement

-5 2's Complement: 11011 (Need machine width- guess from choices) (Add one to 1's Complement only for negative numbers)

-15 2's Complement: 10001 (More width would produce more 1's)

11011:-5 (MSB is one so negative number, -1 and then complement and find answer) If no 1 in MSB then simply write 11

11110:-2 (MSB is one so negative number, -1 and then complement and find answer) If no 1 in MSB then simply write 14

01011: 11 (Same as unsigned)

Fractions in Binary! !

Next Class

-5 2's Complement: 11011 (Need machine width- guess from choices) (Add one to 1's Complement only for negative numbers)

-15 2's Complement: 10001 (More width would produce more 1's)

11011:-5 (MSB is one so negative number, -1 and then complement and find answer) If no 1 in MSB then simply write 11

11110:-2 (MSB is one so negative number, -1 and then complement and find answer) If no 1 in MSB then simply write 14

01011: 11 (Same as unsigned)

✍️ Manishika

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