Tutorial : Two's Complement Representation

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Two's Complement Representation

1/1 point (ungraded)

The 8-bit binary two's complement representation for decimal -30 is

- (•) 11100010
- ( ) 10110011
- ( ) -00011110
- ( ) 10101100
- ( ) None of the above

✔

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Two's Complement Representation

3/3 points (ungraded)

A binary function is a function whose inputs and outputs are binary values (0 or 1). To determine how many binary functions of N inputs there are, you want to consider how many unique functions can be defined for all combinations of those inputs. For example, the AND(A, B) is different from the OR(A, B) because for inputs 01 and 10 the AND function produces a 0 but the OR function produces a 1. This means that AND and OR are two distinct functions of two binary inputs. (Note: there are many more than two distinct functions of two binary inputs).

How many binary functions of two (binary) inputs are there? (You can write your answer in terms of exponents, ex: x^2) 16 ✔

How many binary functions of 5 (binary) inputs are there? (You can write your answer in terms of exponents, ex: x^2) 2^(2^5) ✔

Ternary logic functions use 3-valued logic. How many ternary functions of 2 (ternary) inputs are there? (You can write your answer in terms of exponents, ex: x^2 or x^(y^2)) 3^(3^2) ✔

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Two's Complement Representation

2/2 points (ungraded)

What decimal integer is represented by the 5-bit two's complement binary number 01011?

11 ✔

What decimal integer is represented by the 5-bit two's complement binary number 11101?

-3 ✔

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Two's Complement Representation

3/3 points (ungraded)

Calculator

Using a 4-bit two's complement representation, what is the range of integers that can be represented with a single 4-bit quantity?

Range of integers: min -8 ✔ max 7 ✔

Consider the following subtraction problem where the operands are 5-bit two's complement numbers. Compute the result and give the answer as a decimal (base 10) number.

```
  11010
- 10000
```

Answer in decimal (base 10): 10 ✔

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- Incorrect Answer for "How many binary functions of 3 (binary) inputs are there?" — 5
  First let's assume it has 3 inputs and 3 outputs. Though number of outputs are not specified looking as the approach in other questio...
- could not format the html — 2
  why the html formated after completing the quiz
- Two's Complement Representation and How many binary functions of two (binary) inputs are there? — 3
  Am I missing something or there was no mention for counting possible functions problem in the lections or somewhere before? This ...
- Binary Function — 8
  What does this explanation mean: Each set of these 4 outputs corresponds to a binary function, so there are 2^4 possible binary fun...
- Typo — 2
- Help: Binary Functions & Two's Complement Representation — 5
  Some questions such as the following were brought up in the "Tutorial Problems" section of Chapter 1 (Basics of Information): > How...
- "Single-valued function of single-bit binary values" seems a better definition. — 1
  For example in addition of multibit binary numbers; total 3 binary values) enter the operation and 2 bit values are produced for every ...

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Calculator

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