

Activity: Practice on Signed Integers

A. Why?

There are three different ways to represent signed binary integers; each way has its own peculiarity. Two's complement is typically used in hardware.

B. Outcomes

After this activity, you should be able to

- Take the negative of an integer in sign-magnitude, one's complement, and two's complement.
- Say what the extreme cases of 5-bit integers (00000, 11111, 01111, and 10000) represent.

C. Questions

Form groups, assign roles, and answer the following questions. Write out your group's results or email them to f09cs350@gmail.com.

For each of the three ways to represent signed binary integers (sign-magnitude, one's complement, and two's complement), answer the following questions.

1. What decimal number does 01101 represent?
2. What is the negative of 01101?
3. What is the negative of the negative of 01101?
4. What is the negative of 00000?
5. What does 11111 represent?
6. What does 10000 represent?
7. What is 01111+10000?