

Section 3 Worksheet: Integers

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Conversion Practice

Complete the following table:

Decimal	Binary	Hexadecimal
1		
21		
	0b1000_0001	
		0x1e

You have the following C code:

```
int x = 5;
```

How would you write C code to convert x to binary? Why?

Integer Practice

What is the range of an unsigned long? How many bytes does one take up on the Myth machines?

What is the range of a signed short? How many bytes does one take up on the Myth machines?

Alice, Bob, and Eve are trying to write an expression for the (floored) average of two **unsigned** integers x and y. Alice says to do $(x+y) / 2$. Bob says to do $x/2 + y/2$. Eve says to do $x + (y-x) / 2$. What do you think about the correctness of these approaches?

Casting Practice

Determine whether each of these evaluates to true or false.

`-8 < 5`

`-8 < 5U`

`-8U < 5U`

`-8 < (signed int) 5U`

`-8 < (unsigned int) 5`

(unsigned char) 256 > 1

(unsigned char) 257 > 1

(unsigned char) 258 > 1