Use of Binary in Computing

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Types

```
int x = 65;
System.out.println(x);
// 65
System.out.println((char) x);
// A
System.out.println(Integer.toBinaryString(x));
// 1000001
System.out.println((float) x);
// 65.0
int y = Float.floatToIntBits((float) x);
System.out.println(Integer.toBinaryString(y));
// 10000101000001000000000000000000
```

What every computer scientist should know about floating-point arithmetic, 2023. URL https://docs.oracle.com/cd/E19957-01/806-3568/ncg_goldberg.html

Fabien Sanglard. Floating point visually explained, 2023. URL https://fabiensanglard.net/floating_point_visually_explained/

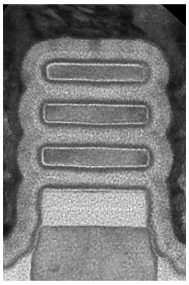
Integer Addition

	55	110111
+	33	100001
	88	1011000

Integer Multiply by Two

	55	110111
×	2	10
		000000
+		1101110
	110	1101110

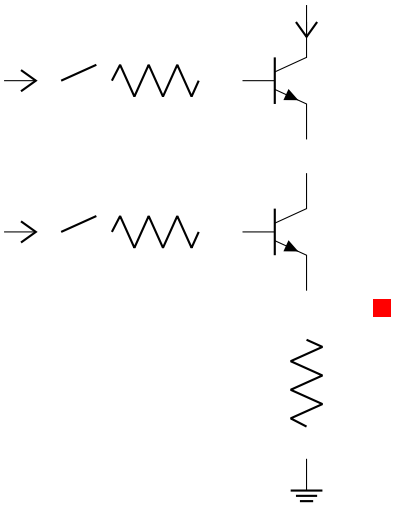
Nanometers



Introducing the world's first 2 nm node chip | ibm research blog, 2023. URL https://research.ibm.com/blog/2-nm-chip

nm	Nanometre	0.000000001 metres
	Nanometre	10^{-9} metres
pm	Picometre	10^{-12} metres
	Atomic Radius of Silicon	111pm

From Physical to Logical



Designing an and gate using transistors, 2023. URL https://circuitdigest.com/electronic-circuits/designing-and-gate-using-transistors