Java Primitive Data Types

Type Name	Description	Storage	Smallest Value	Largest Value
boolean	Logical values	1 bit	false (0)	true (1)
char	Single characters	2 bytes	NUL (\0)	$depends^1$
byte	Very small integers	1 byte	-128	127
short	Small integers	2 bytes	-32,768	32,767
int	Integers	4 bytes	-2,147,483,648	2,147,483,647
long	Large integers	8 bytes	-2^{63}	$2^{63} - 1$ [2]
float	Low–precision reals	4 bytes	1.4013e-45	3.4028e+38 [3]
double	Higher–precision reals	8 bytes	4.9407e-324	1.7977e+308 [3]

[1] Java encodes char using Unicode, and the maximum number of available symbols varies depending on the language being used. The first 128 characters of Unicode match the 7–bit ASCII standard.

[2] -9,223,372,036,854,775,808 to +9,223,372,036,854,775,807

[3] same range in negative numbers

Some Java Format Specifier Codes

These are part of the format string used within System.out.printf() to format output values. Commonly-used format specifiers have the form %[width][.precision]code (e.g. %d and %5.2f). Not shown here are format flags, which are used for effects such as left-justification. While these are borrowed from C, Java is more strict about how they are used.

Code	Formats	Example Use	Corresponding Output
d	Integers (Base 10)	("%5d",29)	29
x	Integers (Base 16)	("%x %x",29,32)	1D 20
o	Integers (Base 8)	("%o",29)	35
f	Floating-point	("%7.2f",874.9163)	874.92
e	Exponential Floating-point	("%e",874.9163)	8.749163e+02
c	Characters	("%c",'Y')	Y
s	Strings	("%10s","Hi")	Hi