Type table

The table illustrates the type of result of operation between two numbers should be. (if NOT explicitly cast.)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x + y | Y | Byte | Int | Long | Float | Double |
| X |
| Byte | | Byte | Int | Long | Float | Double |
| Int | | Int | Int | Long | Float | Double |
| Long | | Long | Long | Long | Float | Double |
| Float | | Float | Float | Float | Float | Double |
| Double | | Double | Double | Double | Double | Double |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x - y | Y | Byte | Int | Long | Float | Double |
| x |
| Byte | | Byte | Int | Long | Float | Double |
| Int | | Int | Int | Long | Float | Double |
| Long | | Long | Long | Long | Float | Double |
| Float | | Float | Float | Float | Float | Double |
| Double | | Double | Double | Double | Double | Double |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x \* y | Y | Byte | Int | Long | Float | Double |
| x |
| Byte | | Byte | Int | Long | Float | Double |
| Int | | Int | Int | Long | Float | Double |
| Long | | Long | Long | Long | Float | Double |
| Float | | Float | Float | Float | Float | Double |
| Double | | Double | Double | Double | Double | Double |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x / y | Y | Byte | Int | Long | Float | Double |
| x |
| Byte | | Byte | Int | Long | Float | Double |
| Int | | Int | Int | Long | Float | Double |
| Long | | Long | Long | Long | Float | Double |
| Float | | Float | Float | Float | Float | Double |
| Double | | Double | Double | Double | Double | Double |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x % y | Y | Byte | Int | Long | Float | Double |
| x |
| Byte | | Byte | Int | Long | Float | Double |
| Int | | Int | Int | Long | Float | Double |
| Long | | Long | Long | Long | Float | Double |
| Float | | Float | Float | Float | Float | Double |
| Double | | Double | Double | Double | Double | Double |

Iff both of dividend and divisor are not Float and Double type, the fraction of result will be discarded.

i.e. Iff one of dividend and divisor are either Float or Double type, the fraction of result will NOT be discarded.

The table illustrates when the fraction is discarded for division between two numbers.

Y : yes

N : no

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| z = x / y | y | Byte | Int | Long | Float | Double |
| x |
| Byte | | Y | Y | Y | N | N |
| Int | | Y | Y | Y | N | N |
| Long | | Y | Y | Y | N | N |
| Float | | N | N | N | N | N |
| Double | | N | N | N | N | N |