

2/11/19

int i=9, j=10, k=11;

exp	result
$i * j + 7$	97
$7 + i * j$	97
$k \% i$	2
i / j	0

double a=9, b=10, c=11;

expr	result
$a * b + 7.0$	97.0
$7.0 + a * b$	97.0
$a \% b$	Illegal (mod only works with int)
a / b	0.9
a / c	0.81818181... To about 15 places

float $p = 9.0f$, $q = 10.0f$, $r = 11.0f$

exp	result
$p * q + 7.0f$	97.0 97.0f
$7.0f + p * q$	97.0f
$\%$	Illegal
p / q	0.9f
p / r	0.81818181 (7 to 8 digits)

Mixed Mode

any legal operation

$i * i \Rightarrow i$
 $i * f$
 $f * i$ } $\Rightarrow f$
 $i * d$
 $d * i$ } $\Rightarrow d$
 $f * f \Rightarrow f$
 $f * d$
 $d * f$
 $d * d$ } $\Rightarrow d$

changing modes across assignment operator

int i=9, j=10, k;

double a=9.0, b=10.0, c;

c = ~~a/b~~ a/b; // c becomes 0.9

k = i/j; // k " 0

k = a/b; // k " 0

c = i/j; // c " 0.0

c = 0.0 + i/j; // c " 0.0

c = (0.0 + i) / j; // c " 0.9

9.0
double

c = $\frac{F}{1.8} + 32$

c = $\frac{5}{9} * F - 32$

c = $5/9 * F - 32$

$$C = S/9 * F - 32 \quad \text{WRONG}$$

$$C = 5.0/9.0 * F - 32 \quad \text{RIGHT}$$

MATH FUNCTIONS

double a=9.0, b=10.0, c

c = sqrt(a); // c becomes 3.0

c = sqrt(b); // c becomes 10.0

c = abs(b); // c becomes 10.0

c = abs(-1*b); // " " 10.0

sin()

cos()

tan()

↑ Radians

after #include <stdio.h>

must #include <math.h>

short hand

$$n = n + 1$$

$$n++ \text{ or } ++n$$

$$j = j - 1$$

$$j-- \quad --j$$

$$a = a + 5$$

$$a += 5$$

$$b = b - 17$$

$$b -= 17$$

$$c = c * 2$$

$$c *= 2$$

$$d = d / e$$

$$d /= e$$

$$g = g \% h$$

$$g \% = h$$

$$m = n + 2$$

(no short hand)

$$n = n + 2 / m$$

(no shorthand)

~~$$n += 2 / m$$~~

int i, j, k;

i = 6;

j = ++i + 5;

← i is 7, j is 12

k = 6

j = i++ + 5;

← ~~i is 7~~, ~~j is 11~~

i is 7, j is 11

k = 6

j = i++ + 3 + --i * 4 - i++ + 3

C spec say if ++ or -- appears more than one on a single variable results are indeterminate