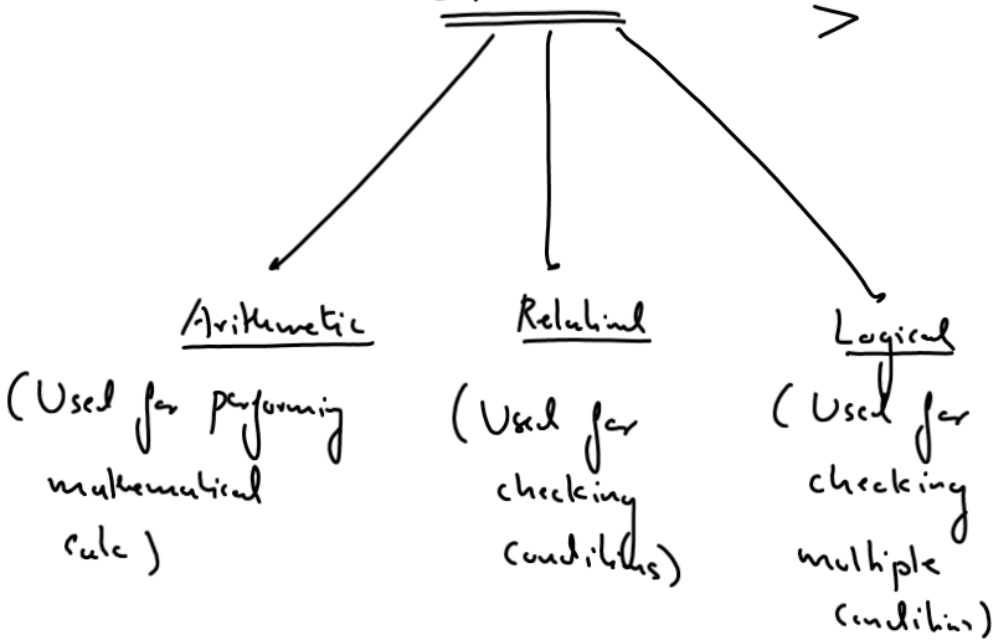
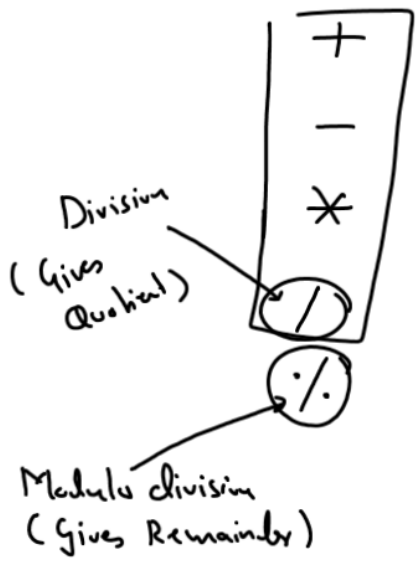
OPERATORS



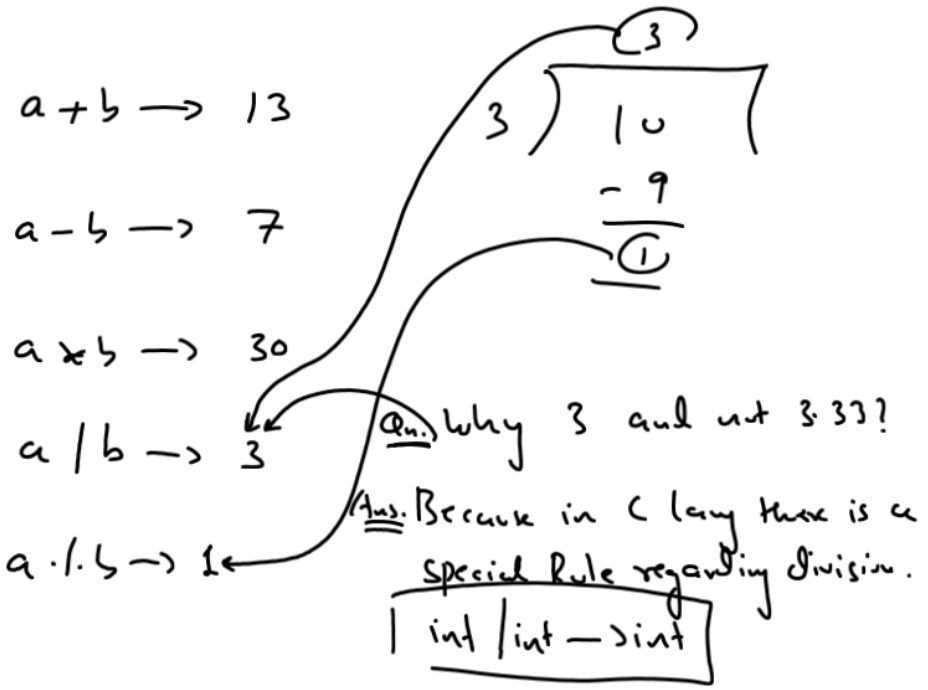
Arithmetic Op



Math

2 · 3 ✓
2 (a+b) ✓
=
2 · 3 X
2 * 3
2 (a+b) X
2 * (a+b) ✓

```
int a=10, b=3;
```



① `int a;`

```
a = 10/4;
```
→ 2

```
printf("%d", a);
```

② `float a;`

```
a = 10/4;
```
→ 2.000000

```
printf("%f", a);
```

③ `int a;`

```
a = 10/4.0;
```
→ 2

```
printf("%d", a);
```

④ `float a;`

```
a = 10/4.0;
```

```
printf("%f", a);
```
2.500000

Two Special Rules About / and ./.

$$
\begin{array}{r}
0 \\
4\overline{)\,3\,(} \\
-0 \\
\hline
3
\end{array}
$$

① $1 / 2 \rightarrow 0$

$3 / 4 \rightarrow 0$

② $1 ./. 2 \rightarrow 1$

$3 ./. 4 \rightarrow 3$

Some More Examples

$7 ./. 5^{-} \rightarrow 2$

$5 / 7 \rightarrow 0$

$5^{-} ./. 7 \rightarrow 5^{-}$

$7 / 5^{-} \rightarrow 1$

① X 5.0 / 3.0

② X 5 / 3.0

③ X 5.0 / 3

```
char ch1 = 'A';   // 65
char ch2 = 'B';   // 66
int x, y;
x = ch1 / ch2;    -> x = 65 / 66
y = ch2 / ch1;    -> y = 66 / 65
printf("%d %d", x, y);
        65  1
```

① 5 `/.` 3 → 2

② -5 `/.` 3 → -2

③ 5 `/.` -3 → -2

④ -5 `/.` -3 → -2

How to calculate power in C ?

OR

How to find 2^3 in C ?

① 2 ^ 3 X

② 2 ** 3 X

③ 2 $ 3 X

④ 2^3 X

① `x = 2 * 2 * 2;` ✓

② `x = pow(2, 3);` ✓

Mathematics In C

Operators

directly built inside compiler

- +
- −
- *
- /
- %

Function

come from a header file called math.h

- sqrt ( )
- pow ( )
- log ( )
- sin ( )
- .
- .
- .

Relational Operators (Used for test cond)

- >
- <
- >=
- <=
- ==
- !=

→ True → 1

→ False → 0

=	Vs	==
Assignment op		Equality Testing op

int a = 10, b = 7;
a = b;
printf("%d %d", a, b);
7 7
		int a = 10, b = 7, c;
		c = a == b; → True → 1, False → 0
		printf("%d %d %d", a, b, c);
		10 7 0

① int a = 10, b = 7, c;

c = a > b;

printf("%d %d %d", a, b, c);
10 7 1

② int a = 5, b = 9, c;

c = a > b;

printf("%d %d %d", a, b, c);
5 9 0

```
int a=10, b=7, c;

c = a = b;
```

Multi. Assignment expression

```
printf("%d %d %d", a, b, c);
        7  7  7
```

```
int a, b, c, d, e;

a = 10;
b = 10;
c = 10;   OR
d = 10;
e = 10;

a = b = c = d = e = 10;
```

Multi. Assignment exp

```
int a, b, c, d, e;
```

✗ `a = b = c = d = 10 = e;`

L-value reqd

On LHS of assignment operator only variables are allowed!

✗ `10 = 11;`

✗ `10 = 10;`

`10 == 11;` ✓ —> 0

`10 == 10;` ✓ —> 1

```
int a = 10, b = 7, c;
```

`a == b = c`

✗ `0 = c;`

✓ `x = y + 2;` | ✓ `k = 2 + 3;`

✗ `y + 2 = x;` | `2 + 3 = k;` ✗

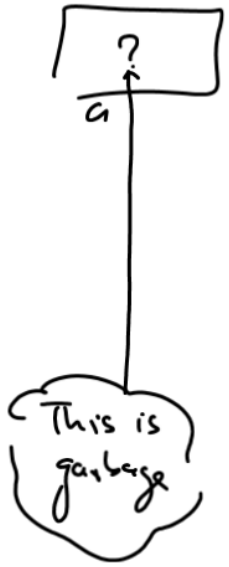
error

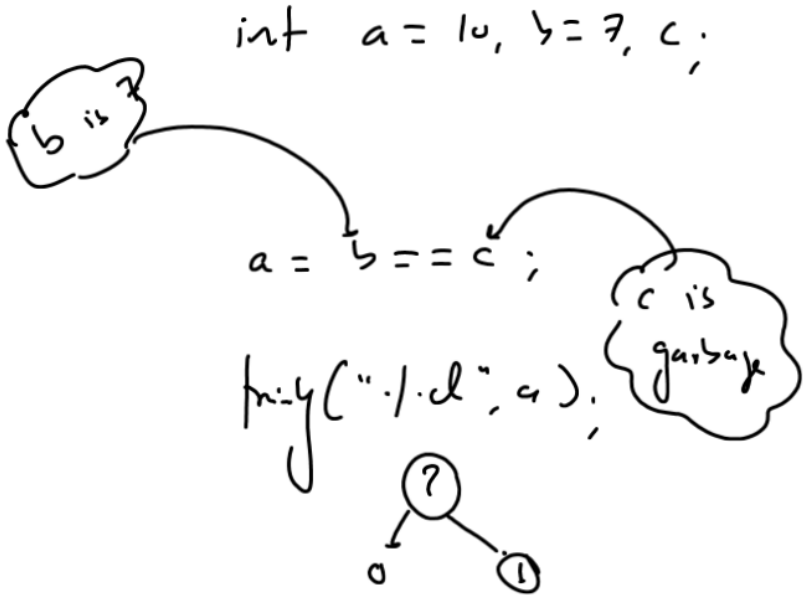
```
int a, b, c, d, e;

a = b = c = d = e;
```

garbage

(any unpredictable value)

```
int a;

printf("%d", a);
```




int a = 10, b = 7, c;
b is 7
a = b == c;
c is garbage
printf("%d", a);
?
0
1