

Errors:

- * Syntax Error (Compile Error)
- * Runtime — (Exception)
- * Logic Error

input
Storage
Process
Output

Salary → Variable
byte, short, int, long
float, double
char, String

$$\text{annualSalary} = \text{salary} \times 12$$

mark	fullMark
23	25

$$\text{pct} = \frac{\text{mark}}{\text{fullMark}} \times 100$$

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Math Operators:

- ① $*$, $/$, $\%$
- ② $+$, $-$

$$5 / 2 \Rightarrow 2$$

$$5.0 / 2 \Rightarrow 2.5$$

int x = 5;

int y = 2;

$$x / y \Rightarrow 2$$

(double) x / y \Rightarrow 2.5

Casting

$$7 \% 3 \Rightarrow 1$$

$$11 \% 3 \Rightarrow 2$$

$$10 \% 2 \Rightarrow 0$$

$$3 + 6 / 2$$

$$(6 / 2) \times 3$$

Assignment Operator:

x
5
3
8
10
30
25
28
27
28
27

x ++;

$$\text{cout}(x++) \Rightarrow 26$$

$$\text{cout}(++x) \Rightarrow 28$$

$$\text{cout}(x--) \Rightarrow 28$$

Common Methods:

$$\text{Math.pow}(5, 2) \Rightarrow 25$$

$$\text{Math.sqrt}(25) \Rightarrow 5.0$$

$$\text{Math.max}(5, 2) \Rightarrow 5$$

$$\text{Math.min}(5, 2) \Rightarrow 2$$

$$\text{Math.round}(19.6) \Rightarrow 20$$

$$\text{Math.random}() \rightarrow 0.2$$

$$0.5 \rightarrow 0.7$$

$$19.6666 \times 100$$

weight	height
68	182

$$\text{bmi} = \frac{\text{weight}}{(\text{height} / 100)^2}$$

20.5 —

0599888921

HV

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(2.1), (2.2), (2.5)

```

if (bool-expr) {
    // true
}
// always

```

```

if (bool-expr) {
    // true
} else {
    // false
}
// always

```

Relational Operators

>, >=, <, <=
==, !=

$x = 5$ x
 5

$x == 3$ $x != 3$
false true

```

if (bool-expr) {
    // T
} else if (bool-expr) {
    // F, T
} else if (bool-expr) {
    // F, T, T
}
// ...
else {
    // all false
}
// always

```

mark fullMark

$Pct = \frac{\text{mark}}{\text{fullMark}} \times 100$

- > 85 → Excellent
- > 75 → V. Good
- > 65 → Good
- >= 50 → Pass
- Fail

weight height

$bmi = \frac{\text{weight}}{(\text{height}/100)^2}$

- < 18.5 → Underweight
- < 25 → Normal
- < 30 → overweight
- obese

Logical operators:

bool-expr && bool-expr
||
! bool-expr

day

1-5 → Work-day
6, 7 → off-day
else → invalid

day

7, 1-4 → work-day
5, 6 → off-day
else → invalid

```
switch (expr) {
```

```
  case value1:
```

```
    break;
```

```
  case value2:
```

```
    break;
```

```
  case value3:
```

```
    break;
```

```
  default:
```

```
}
```

H.W:

3.1, 3.26, 3.33

```
while (bool-expr) {
```

true

```
}
```

false

```
do {
```

```
} while (bool-expr);
```

false

```
for (init; bool-expr; change) {
```

③ true

```
}
```

false

What's 5×3 ?

>> 15

>> 17

Correct

wrong

0	0.55	1
↓	↓	↓
0	5.5	10

What's 5×3 ?

>> 15

What's 7×4 ?

>> 28

What's 5×5 ?

>>

⋮

>> 50

Game Over

What's 7×3 ?

>> 25

Try again, what's 7×3 ?

>> 30

Try again, what's 7×3 ?

>>

⋮

>> 21

Correct

Guess num btw 0-100

>> 5

[Go up

>> 20

[Go up

>> 40

[Go down

>> 25

[Go up

>> 29

You Guessed Right!!

number

29

guess

~~5~~

~~20~~

~~40~~

~~25~~

29

Hw

5.1, 5.3