

Errors:

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

input
storage
process
output

variable
byte, short, int, long
float, double
char, String

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

mark FullMark

23	25
----	----

$$\frac{\text{Pct}}{100} = \frac{\text{mark}}{\text{FullMark}} \cdot * 100$$

92

Math Operators:

- ()
 ① * , / , %
 ② + , -

$$5 / 2 \Rightarrow 2$$

$$5.0 / 2 \Rightarrow 2.5$$

$$\text{int } x = 5;$$

$$\text{int } y = 2;$$

$$x / y \Rightarrow 2$$

(double) $x / y \Rightarrow 2.5$
Casting

$$7 \% 3 \Rightarrow 1$$

$$11 \% 3 \Rightarrow 2$$

$$10 \% 2 \Rightarrow 0$$

Assignment Operator:

int $x = 5;$
 $x = 3;$
 $x = x + 5;$
 $x += 2;$
 $x *= 3;$
 $x -= 5;$

x	5
x	3
x	8
x	10
x	30
x	25
x	26
x	27

$$x++;$$

$$\text{Sout}(x++); \Rightarrow 26$$

$$\text{Sout}(+x); \Rightarrow 28$$

$$\text{Sout}(x--); \Rightarrow 28$$

Common Methods:

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

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

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

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

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

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

$$0.5 \Rightarrow 0.7$$

$$\frac{1}{100}$$

$$19.6666$$

$$\times 100$$

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
 $\boxed{5}$

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

```

if (bool-expr) {
    ==> T
}
else if (bool-expr) {
    ==> F, T
}
else if (bool-expr) {
    ==> F, F, T
}
}
;
else {
    ==> all false
}
}
==> always

```

mark fullMark

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

$> 85 \rightarrow$ Excellent

$> 75 \rightarrow$ V. Good

$> 65 \rightarrow$ Good

$\geq 50 \rightarrow$ Pass

\rightarrow Fail

weight height

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

$< 18.5 \rightarrow$ Underweight

$< 25 \rightarrow$ Normal

$< 30 \rightarrow$ Overweight

\rightarrow Obese

Logical Operations:

bool-expr $\&\&$ bool-expr
||
! bool-expr

1-5 \rightarrow work-day
6, 7 \rightarrow off-day
else \rightarrow invalid

Jay

Jay

7, 1-4 \rightarrow work-day
5, 6 \rightarrow off-day
else \rightarrow 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 {`

`true`

`} while (bool-expr);`

`false`

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

`③ true`

`}`

`false`

what's $5 * 3$?

$\gg 15$

Correct

$\gg 17$
Wrong

$\times 10$	0	0.55	1
\downarrow	\downarrow	\downarrow	\downarrow
	0	5.5	10

what's $5 * 3$?

$\gg 15$

what's $7 * 4$?

$\gg 28$

what's $5 * 5$?

\gg

\vdots

$\gg 50$

Game over

what's $7 * 3$?

$\gg 25$

Try again, what's $7 * 3$?

$\gg 30$

Try again, what's $7 * 3$?

\gg

\vdots

\gg

\vdots

\gg

\vdots

$\gg 21$
Correct

Gives num b/w 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

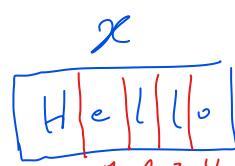
String $x = "Hello"$;

cout(x); \rightarrow Hello

cout($x.charAt(0)$); \rightarrow H

cout($x.substring(0, 4)$); \rightarrow Hell

cout($x.length()$) \rightarrow 5



letter

H

char letter = $x.charAt(0)$;

Character.

F

Ahmed123 X

length()

20 Ahmed) 20 ✓

① at least 8 char

② at least 2 upper

③ at least 2 digits

05 XXX XXXXX

① to char length()

② starts with 05 startsWith(-)

③ all digits isDigit(-)

upperCount

0

1

2

digitCount

0

1

2

3

4

digitCount

0

1

2

3

4