

4c - Assignment Operator

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```
assignment_operator_1.c
1  #include <stdio.h>
2
3  int main()
4  {
5
6      int i, j, k = 0;
7      j = 2 * 3 / 4 + 2.0 / 5 + 8 / 5;
8      k = --j;
9      for(i=0; i<5; i++)
10     {
11         switch(i+k)
12         {
13             case 1:
14             case 2: printf("\n%d", i+k);
15             case 3: printf("\n%d", i+k);
16             default: printf("\n%d", i+k);
17         }
18     }
19
20     return 0;
21 }
22
```

$$\begin{aligned}
 j &= 6/4 + 2.0 / 5 + 8/5; \\
 &= 1 + (2.0 / 5) + (8/5) \\
 &= 1 + 0.4 + 1 \\
 &= 2.4 \\
 \therefore j \text{ is int, } j &= 2
 \end{aligned}$$

$k = --j;$
 $\Rightarrow k = k - (--j);$
 $\therefore$ its pre-decrement,
 the value of j goes
 to 1.

So $i = 0$, $j = 1$ (since j decrements)

And $k = k - (1)$ $\rightarrow j$ after decrement

$$\Rightarrow k = 0 - 1$$

$$\Rightarrow k = -1$$

Now, in the loop the value of i increases

$$\text{So } i+k = -1, 0, 1, 2, 3$$

And in each case being entered except the default, fallthrough happens.

O/P

-1 0 1 2 3
 $\swarrow$ $\swarrow$ $\searrow$ $\swarrow$ $\rightarrow$ 0.4 (case 3. def)

1 o/p (default) 3 o/p
(case 2, 3, def)

1 + 1 + 3 + 3 + 2 = 10 total outputs.

Conditional or Ternary Operator

exp1 ? exp2 : exp3

If exp1 is true then go to exp2, else exp3

eg: { int a = 0;

```
a = 5 < 2 ? 4 : 3;
printf("%d", a);
return 0;
}
```

∵ 5 < 2 is false, we
print value to right
of colon.

Gate CSE 2008

Which combination of int variables x, y, z makes the variable a get the value 4 in the following expression?

$a = (x > y) ? ((x > z) ? x : z) : (y > z) ? y : z$

- A. $x = 3, y = 4, z = 2$
- B. $x = 6, y = 5, z = 3$
- C. $x = 6, y = 3, z = 5$
- D. $x = 5, y = 4, z = 5$

} Given options

con

Answer

They want the overall value of 'a' to be 4.

Converting into if else:

if $(x > y)$ {

$x > z ? x : z$

} else {

$y > z ? y : z$

}

NOTE: Since final output is either x, or y, or z, check for values of 4.

Since only (A) & (D) have a value of 4 for "y", we check those & see what final o/p is for them.

A) $x = 3, y = 4, z = 2$

$(x > y) \rightarrow \text{false}$, going to $y > z ? y : z$

$(y > z) \rightarrow \text{true}$, going to y

$\therefore y = 4$, this is ans

Comma Operator

Evaluated, left to right and, the rightmost

exp. is final value of variable

$x = (a=10, b=5, a+b)$

↓
15

```
#include<stdio.h>

int main(){

    int i, j=2;
    for(i=0; i<=5, j>=0; i++)
    {
        printf("%d ", i+j);
        j--;
    }

    return 0;
}
```

Here value of i does not matter since j is after i with comma operator.

$j = 2, 1, 0.$

Operator Order

Highest to lowest precedence till now:

- i) Arithmetic
- ii) Relational
- iii) Bitwise

④ Logical

⑤ Assignment

⑥ Comma