

# Solution to Exercises in L#9

# Solution to Exercise on Slide 8

What is the value of c?

```
int a = 2;  
int b = 7;  
int c = 0;  
c = b/a;
```

3

# Solution to Exercise on Slide 9

What is the output of printf()?

```
int a = 2;  
int b = 3;  
int c = 7;  
printf(“%d\n”, a * b + c);  
printf(“%d\n”, a * (b + c));
```

13

20

# Solution to Example on Slide 11

$$6 * 3/7 * 2 \%3$$

\* / \* % have the same precedence, their associativity is from left to right:

$$6 * 3/7 * 2 \%3 \leftrightarrow ((( (6*3)/7) * 2) \%3)$$

*What is the value of this expression? 1*

# Solution to Example on Slide 12

- What is the value of a,b,c?

```
int a, b, c;
```

```
a = 10;
```

```
b = 20;
```

```
c = 30;
```

```
b += a *= c -= 2;
```

→(b = b +(a = a \*(c =c -2)))

→ c = 28

→ a= 280

→b = 300

# Solution to Review Question on Slide 13

- What is the output of each printf() statement in the program?

```
#include <stdio.h>
void main(void)
{
    int a=3;
    int b=7;
    float c=6.0;
    a++;
    printf("%d\n", a/b);
    printf("%f\n", a/c);
    printf("%d\n", b%a+a);
    printf("%f\n", c%a);
    b=++a;
    printf("%d\n", b);
    printf("%d\n", a);
    printf("%d\n", a--);
    printf("%d\n", a);
    printf("%d\n", --a);
    printf("%d\n", a);
}
```

→ a=4  
→ 0  
→ 0.666667  
→ 7  
→ compilation error  
→ b=a=5  
→ 5  
→ 5  
→ 5  
→ 4  
→ 3  
→ 3

# Solution to Review Question on Slide 14

- What is the output of each printf() statement in the program?

```
#include <stdio.h>
void main(void)
{
    int a=3;
    printf("%d\n", a++ + a);
    printf("%d\n", ++a +a);
}
```

6

10

# Solution to Exercise on Slide 21

```
int a = 2 , b = 4, c = 5;  
++a *(4+c)/3 -b++ *c;  
b-1;
```

What is the value of the above expressions?

++a

3

$a*(4 + c) / 3 - b * c \rightarrow 3*(4+5)/3-(4*5) = -11$

b++

$\rightarrow b=5$

b-1

$\rightarrow b-1=4$



# Solution to Exercises on Slide 29

```
int a=2;  
int b=3;  
int c=0;  
float d=0;  
int e=0;  
float f=0;
```

```
c= a/b;  
e = (float) a/b;  
d = (float) a/b;  
f = (float) (a/b);
```

What is the value of  
c, e, d, f?

```
c = 0;  
/*division gives the integer quotient*/
```

```
e =0;  
/*a is converted to a float before division,  
after division, the result is converted back  
into an integer for assignment to the  
integer variable e*/
```

```
d = 0.666667;  
/* a is converted to a float before division,  
after division, the result is assigned to the  
float variable d */
```

```
f = 0.000000;  
/*no conversion is required to divide integer  
a by integer b, the integer result 0 is then  
explicitly converted to the float 0.000000  
ans assigned to float variable f*/
```

# Solution to Exercise on Slide 30

- Assume `int b = 2;` and the result is stored in a float variable.

– What is the result of `(float) (b/20);`

0.000000

– What is the result of `(float) b/20;`

0.100000

# Solution to Exercise on Slide 32

- What is the value of each of these expressions?

float x = 10 - 2\*3 = 4.000000 ;

int a = 15%2.0; compiler error (both operands have to be integers);

float y = 3 - 15/3.0 = -2.000000;

int b = 30 % 14 = 2;

float z = -30 + 2\*3\*5.0 = 0.000000;

float d = 10 + 9 - 3/4 + 3.0 = 22.000000 ;

# Solution to Exercise on Slide 33

- Given `int a = 3; int b = 4; int c = 5; float x,y,z;`
- What is the value of `x,y,z`? Assume that the statements are one after each other in a program:

`x = a++ + ++b +(float)b/a; (x=9.666667)`

`y= c-- /a + b; (y = 6.000000)`

`z = b – c + ++a/b-- -b/a; (z =1.000000)`