

Computer Programming

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Review Questions and Problems

(1) `double x = (int)(4/5 +(float)(5/2) + (3.0*3)/2);`
what is the value of x.

- a. 7.8 b. 7.0 c. 6.0 d. 6.5

(2) Given `int x= 4, y= 3; double a = x/y; cout << a;`
what is the output

- a. 0.0 b. 1.33 c. 1 d. 0.75

(3) Given: `cout << 5.5 + 4/7 – (double) 4/ (5%3);`
what is printed

- a. 3.5 b.1.0 c. 4.5 d.-1.0000

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(4) `float x = 3.0 + (3/6) + (3.0/2) + (float)(4/8) ;`
what is stored in x;

- a.5.0 c. 4 d. 5 e.4.5

(5) Given `int x=5, y =10;`
`cout << (x==y || (x < y) && (x !=y));` what is printed

- a. 0 b. 1 d. syntax error

(6) Given `double z =2.3; int x =13;`
`int w = (int) (x + 6.7) + z + z >= 2.0; value of w is?`

- a. 22 b. 23 c. 22.3 d. 1

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(7) Given `int a =4, int b=5;` what is printed?
`cout << (double) (0.5 + 2 < b + (5/2 > a/2));`

- 1.5 b. 1 c. 0 d. NOA

(8) Given `int x =5; int y =10; int z;`

`if (x -= 5) z = x;`
`else if (x++) z = x;`
`else z = 2*x;`

`cout << z;` what is printed?

- a. 0 b.1 c.2 d.5 e.10

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(9) Given: int x =6; int y=5; int z=2;
if ((x-1) == y++) z =y++ * --x;
else z = x++ * ++y;

what is the value of z

- a. 25 b. 20 c. 30 d. 42

(10) Given int a = 4; int b = 5; int c = 0;

if (a=5) c =a * b;

else c = b;

if (a < b) c += 10;

else c += b; the value of c is :

- a. 35 b. 30 c. 10 d. 15

(11) int x =2;

switch (x) {

case 1: cout << 1<<" "; break;

case 2:

case 4: cout << 2 <<" ";

default: cout << 3 <<" "; break;

}

What is printed?

- a. 2 3 b. 2 c. 3 d.123
e. nothing

(12) Given for (int x =0; x!=10;x++) {

cin >> x;

cout << x << endl;

} The last printed value is?

- a. 9 b. 10 c. 0
d. unknown value e. infinite loop

(13) Given int sum =0, j = 3;

for (int i = j <7; j-i; i++) {sum += i+j; } cout << sum;

What is printed after executing the loop:

- a. 0 b.5 c.9 d. infinite loop

(14) Given: int x =0, int y = 0;

while (x < 10) {y = y + x++; x+=2;} cout << y;

What is printed?

- a. 22 b. 18 c. 55 d.10

(15) Given int x =0;

while (x <5)

x+=2;

cout << "hello" << endl;

How many times the word hello is printed?

- a. 0 b. 1 c. 2 d. 5

(16) Given `int x = 10;`

```
for ( ; x > 0; x--) {  
    cout << "hello" << endl;  
    x = x -2;
```

} How many times hello is printed

a. 0 b. 4 c.10 d. infinite

(17) `int sum =0;`

```
for(int i=1;i<=10;i=i*2)    sum=sum+i;  
cout<<sum;    What is printed ?
```

a. 0 b.4 c.8 d. 15

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(18) Given `int a=3, b=5;`

```
while(++a < b++)  
    if(++a == --b)  
        if (b-- == --a)  
            a=a+10;
```

what is the value of a?

a. 4 b. 14 c. 5 d. 3

(19) Given : `int x =0 ;`

```
do{ x +=2 ;    cout<<x;  
    if (x++ == 3) break;  
}while(x);
```

What is the number of iterations in the last loop?

a. 0 b. 1 c. 2 d. infinit loop

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(20) Given `int t1=0, t2 =0;`

```
for (int j =0; j < 4;j++)  
    for (int k = 3; k > 0; --k)  
    {  
        ++t1;  
    }  
    t2++;  
cout <<t1+t2++;
```

a. 13 b. 14 c. 16 d. 17

e. none of the above

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- Write c code to print all values between -10 and 10 inclusive that are even and divisible by 3

```
for (int i = -10; i <=10; i++)
```

```
    if(i% 2 == 0 && i%3 == 0) cout << i << endl;
```

- Read 2 integer numbers X and Y to print $(XY + X^{-Y})$ without using any math function in "math.h"

```
int x,y; cin >> x >> y;    int p =1, value ;
```

```
for (int i =0; i < y; i++) p *= x;
```

```
value = X * Y + 1/p;
```

```
cout << value;
```

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Write a program that keeps reading integers until -1 is read your program must then print

- (1) the count of even numbers
- (2) the count of 3 digit numbers
- (3) the average of all read numbers

Solution:

```
// initialize variables
int num, counte =0, count3=0, count =0;
double sum =0.0;
// next slide is the loop
```

```
while(1) {
    cin >> num;
    if (num == -1) break;
    count++;
    sum += num;
    if(!(num%2)) counte++;
    if(num>99 && num<1000) count3++;
}
cout << sum/count << endl;
cout << counte << endl;
cout << count3 << endl;
```

- Keep reading integer numbers until one positive number > 0 is entered. Then print the divisors of the positive number.
- Ex: if **-10 -1 12** is entered then prints 2 3 4 6

```
int num;
do { cin >> num;
    } while (num <=0);
for (int i = 1; i <= num/2;i++)
    if ( num%i ==) cout << i << endl;
```

- Keep reading integer numbers and calculating their sum. Your program should stop when a **3 digit number** is entered .

You must print the average of all entered numbers. Note *3 digit number* is a number between 100 and 999 inclusive.

Solution #1: Last number is included in average

```
int num, count =0; double sum =0;
do{ cin >> num; sum+= num; cou++;
    } while (num < 100 || num > 999);
cout << "average is " << sum/count;
```

Solution# 2 // last number is not included in average

```
int num, count =0; double sum =0;
cin >> num;
while (num < 100 || num > 1000)
{ sum+= num; count++; cin >> num;}
cout << "average is " << sum/count;
```

Solution#3 // can or not include last number

```
int num, count =0; double sum =0;
while(1) { cin >> num; sum+ = num; count++;
          if (num > 99 && num < 1000) break;}
cout << "average is " << sum/count;
```

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Write a complete program that keeps reading characters until the character '!' is read. For each character read your program needs to do the following.

if the read character is capital letter or small letter it Prints "L".

if the character is a digit (0,1,----9) it Prints "D".

for any other character it prints "*".

Then your program also prints "more capital" if the number of capital letters read is larger than the number of small letters read. Otherwise it prints "more small".

Example if input is: A c d 9 4 1 D > K ^ d 5 s!

Output is : L L L D D D L * L * D L

more small

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```
char c; int counts =0, countl =0;
for(;;){
    cin >> c;
    If (c >='a' && c <= 'z') {cout << 'L' ; counts++;}
    else If (c >='A' && c <= 'Z') {cout << 'L' ; countl++;}
    else if (c >='0' && c <='9') cout << 'D';
    else cout << '*';
}
If (counts > countl) cout << "\n more small";
else cout << endl << "more capital";
```

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- Keep reading numbers of type integer until two equal consecutive numbers are entered. At the end print the average of all entered numbers, the count of even numbers, and the count of negative numbers. Assume that at least two numbers will be entered.

- Example input -2 -10 7 9 -11 30 6 7 7.

```
int countn =0; counte, count =0;
```

```
int last, cur;
```

```
cin >> cur; last = cur-1;
```

```
// continue next page
```

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```

while(1) {
    if (last == cur) break;
    else if (cur < 0) countn++;
    else if (cur%2 ==0) counte++;
    sum+=cur; count++;
    last = cur;
    cin>> cur
}
cout << countn << counte;
cout << "average is " << sum/count;

```

- Write code that keeps reading numbers and stops when a negative number is entered. Based on the numbers entered, the program should print the smallest and largest numbers entered.

Solution: int num, small, large;
cin >> num; small = large = num;
while (num >0) { cin >> num;
 if(num < small) small = num;
 if (num > large) large = num;}
cout <<"the smallest numbers is"<<small<< endl;
cout << "the largest numbers is" << large;