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## CS 12 – Basic Proficiency Exam

January 10, 1996

**PROBLEM 1 :** Determine the output of each of the following code segments

A.            `int i=5, j=2;`  
  
              `i = i * 8 + j / 2;`  
  
              `cout << i << " " << j ;            // print i (space) j`

B.            `int i=5, j=2;`  
  
              `i = i * (8 + j) / 2;`  
  
              `cout << i << " " << j ;`

C.            `int slide = 10;`  
  
              `while (slide > 2)`  
              `{`  
                  `slide = slide - 3;`  
              `}`  
  
              `cout << slide;`

D.

```
while (1)
{
    cout << "hello!" << endl;
}
```

E.

```
void play (int & ref1, int ref2)
{
    if (ref1 > 0 && ref2 > 0)
        ref1 = 7;
    else
        ref1 = ref2;
}

main()
{
    int ping = 936, pong = -1;

    play(ping, pong);

    cout << ping;
}
```

**PROBLEM 2 :** Describe briefly (1-2 sentences) what each of the following code segments does.

A.

```
int fab (int a)
{
    if (a >= 0)
        return a;
    else
        return (-1 * a);
}
```

B.

```
int who (int a, int b)
{
    if (a > b)
        return a;
    else
        return b;
}
```

C. (refer to the function who above)

```
int i, j, k;

cin >> i >> j >> k;    // input three integers

cout << who(i, who(j, k));
```

D.

```
int array[10];

for (int i = 0; i < 10; i++)
{
    array[i] = 0;
}
```

E.

```
int array[10];

for (int i = 0; i < 10; i++)
{
    array[i] = i+1;
}
```



- C. Complete the code segment below so that the program reads in integers and prints out their average. The input and output statements are provided. Note that the average is not necessarily an integer.

```
int inp;
```

```
while (cin >> inp)           // keep reading as long as there is input
{                             // the number read is stored in inp
```

```
}
```

```
cout << "Average of input integers = " << avg << endl;
```