

NAME _____ Comp name _____

1. (20%) Write a function to compute the average of a series on numbers. The function must first ask the user for the number of values he will enter. Then ask the user for those values. Finally add them up and divide by the number of values entered and return the result.

Example. The user enters 3 1 2 3. The first number "3" means there are 3 more numbers to input. The output should be 2 because $(1+2+3) / 3 \rightarrow 2$.

2. (18%) What is the output of the following code segments?

<pre>for (x = 0; x < 6; x = x + 2) for (y = 0; y < 2; y++) printf("%d, ", x + y);</pre>	_____
<pre>for (x = 10; x > 3; x = x - 2) printf("%d, ", x);</pre>	_____
<pre>for (x = 16; x < 2; x = x / 2) printf("%d, ", x);</pre>	_____
<pre>x = 10; for (; x < 10; x = x + 13) printf("%d, ", x);</pre>	_____
<pre>for (x = 0; x < 9; x++) { printf("%d, ", x++); x = x + 2; }</pre>	_____
<pre>x = 0; do { for (y = 1000; y > 0; y = y / 10) printf("%d, %d, ", x, y); x = x + 3; } while (x < 9);</pre>	_____

3. (20%) For each of the following code segments indicate what is the output. Assume the following declarations: `int w = 0, x = 10, y = 20, z = 30;`

<pre>if (w == 0 && ! 0) printf ("True"); else printf("False");</pre>	_____
<pre>if (x != 10 (x + sqrt(z)*sin(k))) printf ("True"); else printf("False");</pre>	_____
<pre>if (k < 30 && k > 45) printf ("false"); else printf("true");</pre>	_____
<pre>if (x <= 10 && y > 10) if (x < 20 z != 30) printf ("Hi"); else printf ("Hello"); else if (y == 20) printf("y = 20");</pre>	_____
<pre>if (x = 1) if (x > 5) printf("Hi"); else printf("Hello"); else printf("Bye");</pre>	_____

4. (22%) What is the output of the following program?

```
int x = 1, y = 2, z = 3;
```

```
int bill(int x, int *p)
{
    int    y = 50;
    z++;
    *p = *p + 1;
    y = x;
    x = 6;
    return z;
}
```

```
void main()
{
    int    w = 10,*p, z = 10;

    w = bill(x, &x);
    z = bill(z, &y);
    x = x + 5;
    y = y + 1;
    p = &x;
    *p = *p + 3;
    printf("w = %d, x = %d, y = %d, z = %d, \n", w, x, y, z);
}
```

Output

5. (20%) What is the output of the following program?

```
#include "stdio.h"

int f(int n)
{
    if (n == 0 || n == 1)
        return 1;
    else
        return 2 * f(n - 1) + f(n - 2);
}

void main ( )
{
    printf(" f(%d) is %d\n", 3, f(3) );
}
```