

1. Write a statement that asks the user to type three integer and another statement that stores the user responses into first, second, third.

```
int firstNumber;
```

```
int secondNumber;
```

```
int thirdNumber;
```

```
printf("Please type \"THREE INTEGERS\" \nType the first one: ");
```

```
scanf("%d", &firstNumber);
```

```
printf("Type the second one: ");
```

```
scanf("%d", &secondNumber);
```

```
printf("Type the last one: ");
```

```
scanf("%d", &thirdNumber);
```

```
printf("The first integer you give is %d \nThe second one is %d \nAnd  
the third one is %d \n", firstNumber, secondNumber, thirdNumber);
```

2. List 3 standard data types of C.

Int, Char, Double.

3. The average pH of citrus fruits is 2.2, and this value has been stored in the variable avg_citrus_pH Provide a statement to display this information in a readable way.

```
double avg_citrus_pH = 2.2;
```

```
printf("The average pH of citrus fruit is %f", avg_citrus_ph);
```

4. Write an algorithm that allows for the input of an integer value, doubles it, subtracts 10, and displays the result.

```
#include <stdio.h>
```

```
int main () {
```

```
    int num1;
```

```
    int result;
```

```
    printf("This program will double the integer input and subtract it  
with ten then displays the result \nPlease input an integer: ");
```

```
    scanf("%d", &num1);
```

```
    result = (num1 * 2) - 10;
```

```
    printf("The result is %d", result);
```

```
    return 0;
```

```
}
```

5. Given the following declarations:

```
#define PI 3.14159
#define MAX_I 1000
double x, y;
int a, b, i;
```

Indicate which of the following statements are valid, and find the value stored by each

valid statement. Also indicate which are invalid and why. Assume that a is 3, b is 4,

and y is -1.0:

a. `i = a % b;`

`// valid, i = 3;`

b. `i = (989 - MAX_I) / a;`

`// Valid, i = -3;`

c. `i = b % a;`

`//Valid, i = 1;`

d. `x = PI * y;`

`//Valid, x = -3.141590;`

e. `i = a / -b;`

`//Valid, x = 0;`

f. `x = a / b;`

`//Valid, x = 0;`

g. $x = a \% (a / b);$

//Invalid, for “ a / b ” as an integer is equals to 0, any number divided by zero is invalid.

h. $i = b / 0;$

//Invalid, any number divided by 0 is invalid.

I. $i = a \% (990 - \text{MAX_I});$

// Valid, $i = 3;$

j. $i = (\text{MAX_I} - 990) / a;$

//Valid, $i = 3;$

k. $x = a / y;$

//Valid, $i = -3.000000;$

l. $i = \text{PI} * a;$

//Valid, $i = 9;$

m. $x = \text{PI} / y;$

//Valid, $x = -3.141590;$

n. $x = b / a;$

//Valid, $x = 1.000000;$

o. $i = (\text{MAX_I} - 990) \% a;$

//Valid, $i = 1;$

```
p. i = a % 0;
```

```
//Invalid, any number divided by 0 is invalid.
```

```
q. i = a % (MAX_I - 990);
```

```
// Valid, i = 3;
```

6. An algorithm that gets three data values x, y, and z as input and outputs the average of those three values.

```
//Variables
```

```
double          x,          y,          z,          average;
```

```
//Getting the input
```

```
//First input
```

```
printf("Please enter the first value: ");
```

```
scanf("%lf", &x);
```

```
//Second input
```

```
printf("Enter the second value: ");
```

```
scanf("%lf", &y);
```

```
//Third input
```

```
printf("Enter the third value: ");
```

```
scanf("%lf", &z);
```

```
//Get the average value
```

```
average = (x + y + z) / 3;
```

```
//Display the average value
```

```
printf("The average value is %f", average);
```

7. An algorithm that gets the amount of electricity used in kilowatt-hours and the cost of electricity per kilowatt hour. Its output is the total amount of the electric bill, including an 8% sales tax.

```
//Constants
```

```
KW_PER_HOUR_RATE = 9.5458
```

```
SALES_TAX = 0.08
```

```
//Variable
```

```
double KW_per_hour_used;
```

```
//Getting the Input
```

```
    printf("Please enter your consumed electricity per killowatt-hour:");
```

```
    scanf("%lf", &KW_per_hour_used);
```

```
//Display the electricity bill
```

```
    printf("Your electricity bill is %f Pesos", (KW_per_hour_used * KW_PER_HOUR_RATE) * SALES_TAX);
```

8. An algorithm that is given three numbers corresponding to the number of times a race car driver has finished first, second, and third. The algorithm computes and displays how many points that driver has earned given 5 points for a first, 3 points for a second, and 1 point for a third place finish.

```
//Constants
```

```
FIRST_PLACE_POINTS = 5
```

```
SECOND_PLACE_POINTS = 3
```

```
THIRD_PLACE_POINTS = 1
```

```
//Variables
```

```
int num1, num2, num3, totalPoints;
```

```
// Getting inputs

//First input
    printf("Enter the number of times he placed first: ");
    scanf("%d",                                &num1);

//Second input
    printf("Enter the number of times he placed second: ");
    scanf("%d", &num2);

    //Third input
    printf("Enter the number of times he placed third: ");
    scanf("%d", &num3);

    //Gettin the total points
    totalPoints = (num1 * FIRST_PLACE_POINTS) + (num2 *
SECOND_PLACE_POINTS) + (num3 * THIRD_PLACE_POINTS);

    //Display the total points
    printf("The drivers total points is %d", totalPoints);
```