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CCC101 - CS1A

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 first, second, third;
printf("Enter the first number");
scanf("%d", &first);
printf("Enter the second number");
scanf("%d", &second);
printf("Enter the third number");
scanf("%d", &third);
```

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.

```
float avg_citrus_pH = 2.2;
printf("The average pH of citrus fruits is %l", avg_citrus_pH)
```

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

- Int var
- Scan the value of var
- Var = var * 2
- var = var - 10
- Print the var

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, value = 3
b. i = (989 - MAX_I) / a; //valid, value = -3
c. i = b % a; // valid, value = 1
d. x = PI * y; // valid, value = -3.141590
e. i = a / -b; // valid, value = 0

f. x = a / b; // valid, value = 0.000000
g. x = a % (a / b); // valid, value = 0.000000
h. i = b / 0; // invalid, b divided by 0 is undefined
i. i = a %(990 - MAX_I); // valid, value = 3
j. i = (MAX_I - 990) / a; // valid, value = 10
k. x = a / y; // valid, value = -3.000000
l. i = PI * a; // valid, value = 9
m. x = PI / y; // valid, value = -3.141590
n. x=b/a;  // valid, value = 1.000000
o. i = (MAX_I - 990) % a; // valid, value = 1
p. i = a % 0; // invalid, remainder of a divided by 0 is
   undefined
q. I = a % (MAX_I-990); // valid, value = 0
```

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

- Declare int x, y, z, ave;
- Scan the values for x, y, z
- ave = x + y + z
- ave = ave / 3
- Print the value of ave

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

- Declare double kilowat_per_hour, price_per_kwh, bill, bill_with_tax
- Declare double tax = 0.08
- Scan the value of kilowatt_per_hour and price_per_kwh
- bill = kilowatt_per_hour * price_per_kwh
- bill = bill + (bill * tax)
- Print the bill

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

- Given that int first, second, third have values
- Declare int points with a value of 0
- points = points + (first * 5)
- points = points + (first * 3)
- points = points + (first * 1)
- Print the points variable