printf() Format Control Examples

printf("The loneliest number is \%10d.\n", 1);
The loneliest number is 1.

printf("The letter \%10c, and the string \%10s.\n",
        'B', "Hello world");
The letter B, and the string Hello world.

printf("The square root of 3 is \%30.20g.\n", sqrt(3));
The square root of 3 is 1.7320508075688772.

printf("The loneliest number is \%30.20d.\n", 1);
The loneliest number is 000000000000000000000001.

printf("The loneliest number is \%-10d.\n", 1);
The loneliest number is 1.

printf("The loneliest number is \%+10d.\n", 1);
The loneliest number is +1.

printf("The loneliest number is \%#o.\n", 1);
The loneliest number is 01.

printf("The loneliest number is \%#x.\n", 1);
The loneliest number is 0x1.

printf("The letter \%010c, and the string \%010s\n",
        'B', "Hello world");
The letter 0000000000B, and the string Hello world.
Hack - Self Printing Program

```c
main(s){s="main(s){s=%c%s%c;printf(s,34,s,34);}";printf(s,34,s,34);}
```
Other `scanf()`/`printf()` Differences

- The %e, %f, and %g formatters all take double arguments for `printf()`, but float arguments for `scanf()`.
**scanf() Examples**

**Program lines**

```c
scanf("%d%c%s", &x, &ch, s);
printf("%d \"%c\" %s\n", x, ch, s);

/* f1, f2, f3 are doubles */
scanf("%le|%lf|%lg", &f1, &f2, &f3);
printf("%f %f %f\n", f1, f2, f3);

scanf("%c%s%3x", &ch, s, &x);
printf("%c %s %#X %#o\n", ch, s, x, x);
```

**Input**

```
2341 times 1.0001e-3|0.0010001|10.001e-04x
    abcdef0123
```

**Output**

```
2341 " " times
0.001000 0.001000 0.001000
x a 0XBCD 05715
```

**Question:** What are the return values from the calls to `scanf()`?