

pointer

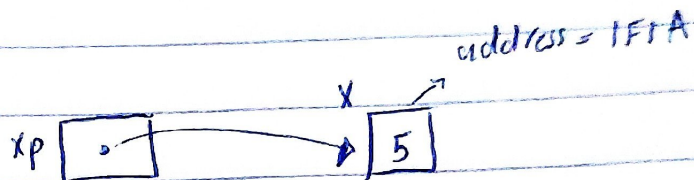
a variable that contains an address of another variable

How to declare a pointer data type * pointer name

How can a function return more than output to caller:-

By using pointer.

```
int *xp;
```



```
int x = 5;
```

```
xp = &x;
```

① `printf("%p", xp);` ⇒ (1F1A) ← `x` address الـ `address` يطبع

② `printf("%p", &x);` ⇒ (1F1A) ← `يطبع`

③ `printf("%d", x);`

④ `printf("%d", *xp);`

الـ `address` يطبع (5)

العتلي وين `xp` بتا نشر والطبعلي
محتوى يلي بتا نشر عليه.

write a c program to simulate a calculator

(addition, subtraction, multiplication, division)

defining
pointer

for two number, use one function to perform the task and return result to main program.

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

```
void calculator (int x, int y, int *sump, int *subp,  
int *mulp, int *divp);
```

```
int main() {
```

```
int a, b, sum, sub, div, mult;
```

```
printf (" please enter two numbers");
```

```
scanf ("%d %d", &a, &b);
```

```
calculator (a, b, &sum, &sub, &mult, &div);
```

```
printf (" addition result = %d", sum);
```

```
printf (" subtraction result = %d", sub);
```

```
printf (" multiplication result = %d", mult);
```

```
printf (" division result = %d", div);
```

```
return 0;
```

```
void calculator ( int x, int y, int *sump, int *subp,
                 int *mulp, int *divp) {
```

```
    *sump = x + y; // الحق sump ورجعنا مؤدتي بمقابلتي x+y
    *subp = x - y;
    *mulp = x * y;
    *divp = x / y;
}
```

main

a 5

b 3

sum

sub

mult

div

calculator

x 5

y 3

sump

subp

mulp

divp

write a c program to find How many 200's, 100's
50, 10's, 5's, 2's, 1's

in a certain amount of money, use one function?

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

```
void cashier ( int amount, int *twoh p, int *Oneh p  
int *fifty p, int *twenty p, int *ten p, int *five p, int *two p  
int *one p);
```

```
int main ( ) {
```

```
int amount;
```

```
int twoh, oneh, fifty, twenty, ten, five, two, one;
```

```
printf ( " please enter amount");
```

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

```
cashier ( amount, &twoh, &oneh, &fifty, &twenty, &ten  
&five, &two, &One);
```

```
printf ( "%d %d %d %d %d %d %d %d\n",  
twoh, oneh, fifty, twenty, ten, five, two, one);
```

```
return 0;
```


pointers

① Determine the output of the following:-

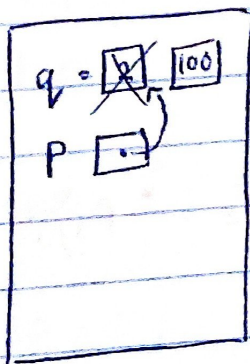
```
int main() {  
    int a = 2;  
    int *p;  
    p = &a;  
    *p = 100;
```

```
    printf("%d\n", a);  
    printf("%p\n", p);  
    printf("%d\n", *p);  
    printf("%p\n", &a);  
    printf("%p\n", &p);  
    return 0;  
}
```

المكانة P المتغيرة

Not ⇒ %P to print the address in Hex.

main



out. put

100	
&a	→ (address of a)
100	
&a	→ (address of a)
&p	→ (address of p)

```
② int main() {
```

```
    int x = 3, y = 4, z = 6;
```

```
    int * p1, * p2, * p3;
```

```
    p1 = &x;
```

```
    p2 = &y;
```

```
    p3 = &z;
```

```
    *p1 = *p2 + *p3;
```

```
    (*p1)++;
```

```
    (*p2)--;
```

```
    *p1 = (*p2) * (*p3);
```

```
    *p2 = (*p2) * (*p3);
```

```
    x = y + z;
```

```
    printf(" %d %d %dln", x, y, z);
```

```
    printf(" %d %d %d ", *p1, *p2, *p3);
```

```
    return 0;
```

```
}
```

main

24

out put

x

24

y

18

z

6

p1

0

p2

0

24

186

24

186

write a function to return:-

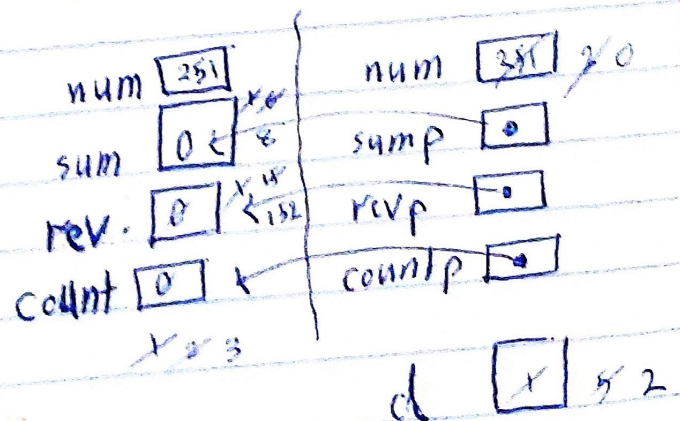
- ① Find the sum of digits.
- ② Find the sum of its digits.
- ③ Find the reverse.

```
#include <stdio.h>
void num_f (int num, int *sump, int *rev, p
int *count, p);
```

```
int main() {
    int num;
    int sum, count, rev;
    printf("please enter the number\n");
    scanf("%d", &num);
    num_f(num, &sum, &count, &rev);
    printf("sum = %d\n", sum);
    printf("count = %d\n", count);
    printf("rev = %d\n", rev);
    return 0;
}
```

```
void num_f (int num, int *sump, int *revp, int *countp) {
```

```
    *sump = 0;
    *countp = 0;
    *revp = 0;
    while (num != 0) {
        int d = num % 10;
        ++(*countp);
```



* sump = * sump + d;

* revp = (* revp * 10) + d;

num = num / 10;

}

}

