**רקורסיות**

1.

int sum(int number) {

if (number == 1)

return 1;

return ( number + sum(number - 1));

}

2.

float power(int x, int y) {

if (y == -1)

return 1.0/x;

return power(x, y + 1) \* 1 / x;

}

3.

int zugi(int x) {

if (x < 10) {

if (x % 2 == 0)

return 1;

return 0;

}

if (x % 2 == 0)

return zugi(x / 10);

return 0;

}

4.

void printArr(int arr[], int index) {

if (index < 0)

return;

printArr(arr, index - 1);

printf("%d|", arr[index]);

}

5.

int zugiInArr(int arr[], int index) {

if (index < 0)

return 0;

int zugi = 0;

if (arr[index] % 2 == 0)

zugi = 1;

return zugi += zugiInArr(arr, index - 1);

}

6.

int length1(int number) {//מחשב אורך מספר חוץ מאפס

int length = 0;

if (number == 0)

return 0;

length = 1;

return length += length1(number / 10);

}

int lengthOfNumber(int number) {//מחשב כל אורך מספר

if (number == 0)

return 1;

else

return length1(number);

}

7.

int Max(int arr[], int index) {

if (index == 0)

return arr[index];

int num = Max(arr,index - 1);

if (arr[index] > num)

return arr[index];

else

return num;

}

8.

void reverse(int arr[], int start, int end) {

if (start >= end)//גם גדול בשביל שאם יש מספר זוגי של איברים במערך

return;

int temp = arr[start];

arr[start] = arr[end];

arr[end] = temp;

reverse(arr, start + 1, end - 1);

}

9.

void stars(int number) {

int i = 0;

if (number == 0)

return;

stars(number - 1);

for (; i < number; i++) {

printf("\*");

}

printf("\n");

}

10.

void stars(int number) {

int i = 0;

if (number == 0)

return;

for (; i < number;i++) {

printf("\*");

}

printf("\n");

stars(number - 1);

}

11.

void bottle(char c, int spaces, int n) {

if (n == 0)

{

return;

}

for (int i = 0; i < spaces; i++)

{

printf(" ");

}

for (int i = 0; i < n; i++)

{

printf("%c", c);

}

printf("\n");

if (n == 1)

return;

bottle(c, spaces + 1, n - 2);

for (int i = 0; i < spaces; i++)

{

printf(" ");

}

for (int i = 0; i < n; i++)

{

printf("%c", c);

}

printf("\n");

}

12.

**א.**

int sum(int x, int y) {

int sum1 = 0;

if (y == 0)

return 0;

sum1 = x \* y;

return sum1 + sum(x, y - 1);

}

**ב.**

void twoInArray(int arr[], int size) {

if (size <= 1)

return;

twoInArray(arr, size - 2);

printf("%d\n", sum(arr[size - 2], arr[size - 1]));

}

13.

**א.**

int sum(int x, int y) {

int sum1 = 0;

if (y == 0)

return 0;

sum1 = x \* y;

if (y > x)

return sum1 + sum(x, y - 1);

else

return sum1 + sum(x - 1, y - 1);

}

**ב.**

void twoInArray(int arr[], int size) {

if (size <= 1)

return;

printf("%d\n", sum(arr[size - 2], arr[size - 1]));

twoInArray(arr, size - 2);

}

14.

**א.**

int power(int x, int y) {

int sum = 0;

if (y==0)

return 1;

sum = x ;

return sum \* power(x,y-1);

}

float dividespower(int x, int y) {

return 1.0 / power(x, y);

}

**ב.**

float dividespower2(int x, int y) {

float sum = 0;

if (y == 0)

return 0;

sum = dividespower(x, y);

return sum += dividespower2(x, y - 1);

}

**ג.**

int dividesPowerArray(int arr[],int head,int tail) {

if (head >= tail)

return 0;

printf("%lf\n",dividespower2(arr[head], arr[tail]));

dividesPowerArray(arr,head+1, tail - 1);

}