

```
1  #include<stdio.h>
2  #include<stdlib.h>
3  #include<string.h>
4  int F(char symbol)
5  {
6  switch(symbol)
7  {
8  case '+':
9  case '-':return 2;
10 case '*':
11 case '/':return 4;
12 case '^':
13 case '$':return 5;
14 case '(':return 0;
15 case '#':return -1;
16 default:return 8;
17 }
18 }
19 int G(char symbol)
20 {
21 switch(symbol)
22 {
23 case '+':
24 case '-':return 1;
25 case '*':
```

I





```

25     case '*':
26     case '/':return 3;
27     case '^':
28     case '$':return 6;
29     case '(':return 9;
30     case ')':return 0;
31     default:return 7;
32 }
33 }
34 void infix_postfix(char infix[],char postfix[]){
35     int top,i,j;
36     char s[30],symbol;
37     top=-1;
38     s[++top]='#';
39     j=0;
40     for(i=0;i<strlen(infix);i++)
41     {
42         symbol=infix[i];
43         while(F(s[top])>G(symbol))
44         {
45             postfix[j]=s[top--];
46             j++;
47         }
48         if(F(s[top])!=G(symbol))
49         {

```

I





```
48     if(F(s[top])!=G(symbol))
49     {
50         s[++top]=symbol;}
51     else{
52         top--;
53     }
54 }
55
56 while(s[top]!='#')
57 {
58     postfix[j++]=s[top--];
59 }
60 postfix[j]='\0';
61 }
62 int main()
63 {
64     char infix[20];
65     char postfix[20];
66     printf("enter a valid infix expression\n");
67     scanf("%s",infix);
68     infix_postfix(infix,postfix);
69     printf("the postfix expression is\n");
70     printf("%s\n",postfix);
71     return 0;
72 }
```

I





```
> clang-7 -pthread -lm -o main main.c
```

```
> ./main
```

enter a valid infix expression

$((a+b)*c-(d-e))^{(f+g)}$

the postfix expression is

$ab+c*de--fg+^$

```
> []
```



```
> clang-7 -pthread -lm -o main main.c
```

```
> ./main
```

```
enter a valid infix expression
```

```
((a+(b-c)*d)^e+f)
```

```
the postfix expression is
```

```
abc-d*+e^f+
```

```
> 
```



```
> clang-7 -pthread -lm -o main main.c
```

```
> ./main
```

enter a valid infix expression

$(x^y{}^z)-m+n+p/q$

the postfix expression is

$xyz^{^m}-n+pq/+$

```
> █
```



```
❏ clang-7 -pthread -lm -o main main.c
```

```
❏ ./main
```

enter a valid infix expression

(a+(b-c)\*d

the postfix expression is

abc-d\*+(

```
❏ 
```



```
> clang-7 -pthread -lm -o main main.c
```

```
> ./main
```

enter a valid infix expression

$a^b * e - d + e / f / (g + h)$

the postfix expression is

$ab^e * d - ef / gh + / +$

```
> 
```