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#include <iostream>
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```
using namespace std;
```

```
int main()
```

```
{  
    char n, x, i, p;  
    for (p = 1; p <= 5; p++)  
    {  
        cin >> n >> x;  
        int ok = 0;  
        int a[3][5];  
        for (i = 0; i < 3; i++)  
            for (int j = 0; j < 5; j++)  
                a[i][j] = 0;  
        if (n <= '9' && n >= '0')  
        {  
            int k = n - '0';  
            i = 4;  
            while (k && i)  
            {  
                a[1][i] = k % 2;  
                i--;  
                k /= 2;  
            }  
        }  
        else  
        {  
            int k = n - 'A' + 10;  
            i = 4;  
            while (k && i)  
            {  
                a[1][i] = k % 2;  
                i--;  
                k /= 2;  
            }  
        }  
    }  
    if (x <= '9' && x >= '0')  
    {  
        int k = x - '0';  
        i = 4;  
        while (k && i)  
        {  
            a[2][i] = k % 2;  
            i--;  
            k /= 2;  
        }  
    }  
    else  
    {  
        int k = x - 'A' + 10;
```

```

i = 4;
while (k && i)
{
a[2][i] = k % 2;
i--;
k /= 2;
}

}
if (a[1][1] && a[1][2] && a[1][3] && a[1][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "B";
a[1][1] = 0;
a[1][2] = 0;
a[1][3] = 0;
a[1][4] = 0;
}
if (a[2][1] && a[2][2] && a[2][3] && a[2][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~B";
a[2][1] = 0;
a[2][2] = 0;
a[2][3] = 0;
a[2][4] = 0;
}
if (a[1][1] && a[1][2] && a[2][1] && a[2][2])
{

if (ok) cout << " + ";
else ok = 1;
cout << "A";
a[1][1] = 0;
a[1][2] = 0;
a[2][1] = 0;
a[2][2] = 0;
}
if (a[1][2] && a[1][3] && a[2][2] && a[2][3])
{

if (ok) cout << " + ";
else ok = 1;
cout << "C";
a[1][2] = 0;
a[1][3] = 0;
a[2][2] = 0;
a[2][3] = 0;
}

```

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}
if (a[1][3] && a[1][4] && a[2][3] && a[2][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~A";
a[1][3] = 0;
a[1][4] = 0;
a[2][3] = 0;
a[2][4] = 0;
}
if (a[1][1] && a[1][4] && a[2][1] && a[2][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~C";
a[1][1] = 0;
a[1][4] = 0;
a[2][1] = 0;
a[2][4] = 0;
}

if (a[1][1] && a[1][2])
{

if (ok) cout << " + ";
else ok = 1;
cout << "AB";
a[1][1] = 0;
a[1][2] = 0;
}
if (a[1][2] && a[1][3])
{

if (ok) cout << " + ";
else ok = 1;
cout << "BC";
a[1][2] = 0;
a[1][3] = 0;
}
if (a[1][3] && a[1][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~AB";
a[1][3] = 0;
a[1][4] = 0;
}
}

```

```

if (a[2][1] && a[2][2])
{

if (ok) cout << " + ";
else ok = 1;
cout << "A~B";
a[2][1] = 0;
a[2][2] = 0;
}
if (a[2][2] && a[2][3])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~BC";
a[2][2] = 0;
a[2][3] = 0;
}
if (a[2][3] && a[2][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~A~B";
a[2][3] = 0;
a[2][4] = 0;
}
if (a[1][1] && a[2][1])
{

if (ok) cout << " + ";
else ok = 1;
cout << "A~C";
a[1][1] = 0;
a[2][1] = 0;
}
if (a[1][2] && a[2][2])
{

if (ok) cout << " + ";
else ok = 1;
cout << "AC";
a[1][2] = 0;
a[2][2] = 0;
}
if (a[1][3] && a[2][3])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~AC";
a[1][3] = 0;
}

```

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a[2][3] = 0;
}
if (a[2][4] && a[2][1])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~B~C";
a[2][4] = 0;
a[2][1] = 0;
}
if (a[1][4] && a[2][4])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~A~C";
a[1][4] = 0;
a[2][4] = 0;
}
if (a[1][4] && a[1][1])
{

if (ok) cout << " + ";
else ok = 1;
cout << "B~C";
a[1][4] = 0;
a[1][1] = 0;
}
if (a[2][4] && a[2][1])
{

if (ok) cout << " + ";
else ok = 1;
cout << "~B~C";
a[2][4] = 0;
a[2][1] = 0;
}
}

```

```

for (int i = 1; i <= 2; i++)
for (int j = 1; j <= 4; j++)
{
if (a[i][j] != 0) {
cout << " + ";
if (j == 3 || j == 4) cout << "~";
cout << "A";
if (i == 2) cout << "~";
cout << "B";
if (j == 1 || j == 4) cout << "~";
cout << "C";
}
}

```

```
}  
}  
}  
return 0;  
}
```