BL.SC.U4AIE24019

```
clear all;
n=3;
a=dec2bin(2^n-1:-1:0)-'0';
for i=1:(2^n)
   a(i,4)=a(i,2)&a(i,3);
   a(i,5)=a(i,1)|a(i,4);
   a(i,6)=a(i,1)|a(i,2);
   a(i,7)=a(i,1)|a(i,3);
   a(i,8)=a(i,6)&a(i,7);
end
ans=[a]
```

```
ans = 8×8
     1     1     1     1     1     1     1     1
     1     1     0     0     1     1     1     1
     1     0     1     0     1     1     1     1
     1     0     0     0     1     1     1     1
     0     1     1     1     1     1     1     1
     0     1     0     0     0     1     0     0
     0     0     1     0     0     0     1     0
     0     0     0     0     0     0     0     0
```

```
if a(i,5)==a(i,8)
    fprintf("logically equivalent")
else
    fprintf("not logically equivalent")
end
```

```
logically equivalent
```

```
clear all;
n=3;
a=dec2bin(2^n-1:-1:0)-'0';
for i=1:(2^n)
    a(i,4)=a(i,2)|a(i,3);
    a(i,5)=a(i,1)&a(i,4);
    a(i,6)=a(i,1)&a(i,2);
    a(i,7)=a(i,1)&a(i,3);
    a(i,8)=a(i,6)|a(i,7);
end
ans=[a]
```

```
ans = 8×8
     1     1     1     1     1     1     1     1
     1     1     0     1     1     1     0     1
     1     0     1     1     1     0     1     1
     1     0     0     0     0     0     0     0
     0     1     1     1     0     0     0     0
     0     1     0     1     0     0     0     0
     0     0     1     1     0     0     0     0
     0     0     0     0     0     0     0     0
```

```
if a(i,5)==a(i,8)
```

```
    fprintf("logically equivalent")
else
    fprintf("not logically equivalent")
end
```

```
logically equivalent
```

```
clear all;
n=3;
a=dec2bin(2^n-1:-1:0)-'0';
for i=1:(2^n)
    if a(i,1)==1&a(i,2)==0
        a(i,4)==0;
    else
        a(i,4)=1;
    end
    if a(i,1)==1&a(i,3)==0;
        a(i,5)=0;
    else
        a(i,5)=1;
    end
    a(i,6)=a(i,4)&a(i,5);
    a(i,7)=a(i,2)&a(i,3);
    if a(i,1)==1&a(i,7)==0
        a(i,8)=0;
    else
        a(i,8)=1;
    end
end
ans=[a]
```

```
ans = 8×8
     1     1     1     1     1     1     1     1
     1     1     0     1     0     0     0     0
     1     0     1     0     1     0     0     0
     1     0     0     0     0     0     0     0
     0     1     1     1     1     1     1     1
     0     1     0     1     1     1     0     1
     0     0     1     1     1     1     0     1
     0     0     0     1     1     1     0     1
```

```
if a(i,6)==a(i,8)
    fprintf("logically equivalent")
else
    fprintf("not logically equivalent")
end
```

```
logically equivalent
```