```
R = input("enter the relational matrix 'R':  ")
S = input("enter the relational matrix 'S':  ")
```

transitivity

```
n=input('enter the order of the matrix R: ')
```

```
n =
3
```

```
R=input('enter the matrix R: ')
```

```
R = 3×3
     1     0     0
     0     1     1
     0     1     0
```

```
trans=1; %or true
for i=1:n
    for j=1:n
        for k=1:n
            if (R(i,k)==1 && R(k,j)==1 && R(i,j)==0)
                fprintf('Not transitive')
                trans=0; %or false
                break
            end
            break
        end
    end
end
if trans==1
fprintf('Transitive')
end
```

```
Transitive
```

reflexivity

```
function thereflexivity(Matrics,nameomatrix)
    is_reflexive = true;
    for i = 1:width(Matrics)
        if(Matrics(i,i) ~= 1)
            is_reflexive = false;
            break
        end
    end

    if(is_reflexive)
            fprintf("The given matrix %s is reflexive",nameomatrix)
```

```
    else
            fprintf("The given matrix %s is not reflexive",nameomatrix)
    end
end

thereflexivity(R,"R")
thereflexivity(S,"S")
```

symetric

```
function chk_symmetry(M, name_of_matrix)
    is_symmetric = true;
    for i = 1:size(M, 1)
        for j = 1:size(M, 2)
            if M(i, j) ~= M(j, i)
                is_symmetric = false;
                break
            end
        end
    end

    if(is_symmetric)
        fprintf('The given matrix %s is symmetric.\n', name_of_matrix);
    else
        fprintf('The given matrix %s is asymmetric.\n', name_of_matrix);
    end
end

chk_symmetry(R, 'R');
chk_symmetry(S, 'S');
```

question 1)

M (r union s)

```
R=input('enter the order of the matrix R: ')
S=input('enter the order of the matrix R: ')

R | S
```

question 2)

M (R intersection S)

```
R=input('enter the order of the matrix R: ')
```

```
S=input('enter the order of the matrix R: ')

R & S
```

question 3)

M (R - S)

```
R & ~S
```

question 4)

M (S - R)

```
S & ~R
```

question 5)

M (R xor S)

```
XOR(R,S)
```

composition of relation

```
R*R
R*S
```