

## COMPUTER SCIENCE A – EXCLUSIVE OR – CLASS WORK

In logic, the truth table for the “exclusive or” xor is

p	q	p xor q
t	t	f
t	f	t
f	t	t
f	f	f

The exclusive or can be expressed by several different Boolean expressions, as shown in the file `XorStub.java`, which is listed below.

```
public class Xor {
    /**/
    public static void main ( String [] arg ) {
        /*
         * Put code here to:
         *
         * (1) For each option 1, 2 and 3, call method xor for all four
         * combinations of the values of p and q
         * (2) For each option 1, 2 and 3, print out the truth table
         */
        return;
    }
    /**/
    public Xor () { }
    /**/
    private static boolean xor ( int option, boolean p, boolean q ) {
        /**/
        boolean rv;
        if ( option == 1 ) rv = ( p && !q ) || ( !p && q );
        else if ( option == 2 ) rv = ( p || q ) && ( !p || !q );
        else rv = ( p || q ) && !( p && q );
        return rv;
    }
}
```

- 1) Make a program `Xor.java` by adding the indicated code to `XorStub.java`.
- 2) Run the program. For `option = 1`, for example, your output should look something like

```
p xor q = ( p && !q ) || ( !p && q )
```

```
t xor t = f
t xor f = t
f xor t = t
f xor f = f
```

- 3) Show me this code and its output.