1. What Does This Program Do - Looping

When the following program is run with X = 20, what is the final value of C?

```
10  C = 0
20  D = X − 1
30  IF X/D <>INT (X / D )  THEN D = D - 1 ELSE C = D
40  IF C = 0 THEN GOTO 30
50  END
```

2. Boolean Algebra

Simplify completely

$$\overline{X}(X + \overline{Y}) + \overline{Y}(\overline{Y} + \overline{Z}) + \overline{Y}$$

3. Boolean Algebra

List all ordered pairs (A, B) that make the following expression TRUE.

$$\overline{A} + AB + A\overline{B}$$

4. Bit String Flicking

Evaluate

(LSHIFT− 2 (LCIRC− 2 (RSHIFT − 1 10100)))

5. Bit String Flicking

How many different values of X (5 bits long) satisfy the following equation?

00110 OR X = 10110