

Be sure you're not just filling in the truth table row-by-row, evaluating the expression each time. Use properties of the Boolean functions to simplify the process – for example, X and Y are always false when R is true.

Create and evaluate the truth table for the following Boolean expressions. Create the truth table with inputs in order R, S, T, and the typical order for 0's and 1's in truth tables.

$$W = \overline{R} \cdot S + T$$

$$X = \overline{R} \cdot (S + T)$$

$$Y = \overline{R} \cdot S \cdot \overline{T}$$

$$Z = \overline{R} + \overline{S \cdot T}$$

| R | S | T | W | X | Y | Z |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 0 | 0 | 1 |