**Problem 1: X = A + BC  
23 = 8**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **BC** | **X** |
| **0** | **0** | **0** | **0** | **0** |
| **1** | **0** | **1** | **0** | **1** |
| **0** | **1** | **0** | **0** | **0** |
| **1** | **1** | **1** | **0** | **1** |
| **0** | **0** | **0** | **0** | **0** |
| **1** | **0** | **1** | **0** | **1** |
| **0** | **1** | **0** | **1** | **1** |
| **1** | **1** | **1** | **1** | **1** |

**Problem 2: X = A(B+D)  
23 = 8**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **A** | **B** | **D** | **AB** | **AD** | **X** |
| **0** | **0** | **0** |  |  |  |
| **1** | **0** | **1** |  |  |  |
| **0** | **1** | **0** |  |  |  |
| **1** | **1** | **1** |  |  |  |
| **0** | **0** | **0** |  |  |  |
| **1** | **0** | **1** |  |  |  |
| **0** | **1** | **0** |  |  |  |
| **1** | **1** | **1** |  |  |  |

**Problem 3: X = W(V+Y)Z  
24**

**Problem 4: X = PT(P+Z)**

**Problem 5: X = (A+B)(A+C)**

**Problem 6: X = (A + B)C**

**Problem 7: X =  A + BC + D**

**Problem 8: X = AB + AC**

**Problem 9: X = (A + B)(C + D)C**