

HW 10.1

4.

For part (d) we have

x	y	z	\bar{x}	\bar{y}	\bar{z}	xz	$\bar{x}\bar{z}$	$xz + \bar{x}\bar{z}$	$\bar{y}(xz + \bar{x}\bar{z})$
1	1	1	0	0	0	1	0	1	0
1	1	0	0	0	1	0	0	0	0
1	0	1	0	1	0	1	0	1	1
1	0	0	0	1	1	0	0	0	0
0	1	1	1	0	0	0	0	0	0
0	1	0	1	0	1	0	1	1	0
0	0	1	1	1	0	0	0	0	0
0	0	0	1	1	1	0	1	1	1

22. a) Since $0 \oplus 0 = 0$ and $1 \oplus 0 = 1$, this expression simplifies to x .
 b) Since $0 \oplus 1 = 1$ and $1 \oplus 1 = 0$, this expression simplifies to \bar{x} .
 c) Looking at the definition, we see that $x \oplus x = 0$ for all x .
 d) This is similar to part (c); this time the expression always equals 1.