* —— O —— Problems —— O ——

① Prove $x + x'y = x + y$

$\Rightarrow x + x'y$

$\Rightarrow (x + x')(x + y)$

$= 1 \cdot (x + y)$

$= (x + y) \cdot 1$

$= x + y$ = R.H.S

② Prove $xy + \bar{x}z + x\bar{y}z(xy + z) = 1$

L.H.S. $\Rightarrow xy + \bar{x}z + x\bar{y}z(xy + z)$

$\Rightarrow xy + \bar{x}z + x\bar{y}zxy + x\bar{y}zz$

$= xy + \bar{x}z + x\bar{y}z$

$= xy + x\bar{y}z + \bar{x}z$

$= x(y + \bar{y}z) + \bar{x}z$

$= x(y + \bar{y})(y + z) + \bar{x}z$

$$= x(1)\cdot(y+z) + \bar{x}\bar{z}$$

$$= xy + xz + \bar{x}\bar{z}$$

$$= xy + 1$$

$$= 1 + xy$$

$$= (1+x)(1+y)$$

$$= (x+1)(y+1)$$

$$= 1 \cdot 1$$

$$= 1.$$