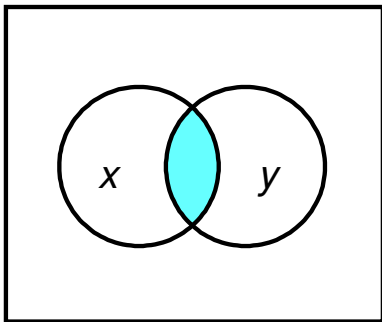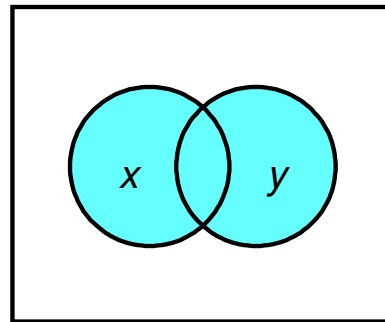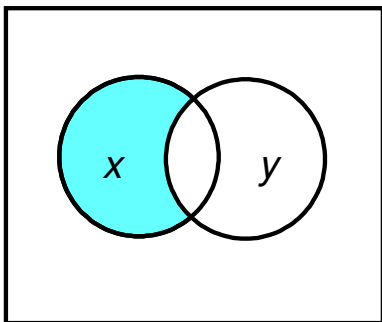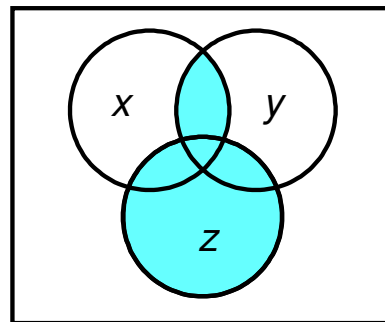**Constant 1**

**Constant 0**

**(c) Variable x**
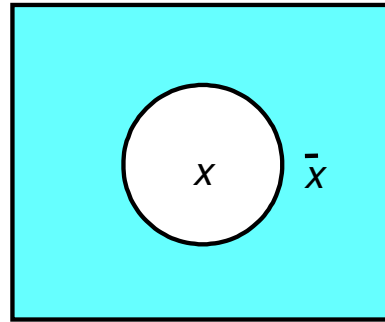
$\bar{x}$

$x \cdot y$

$x + y$
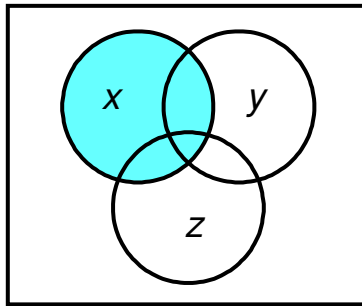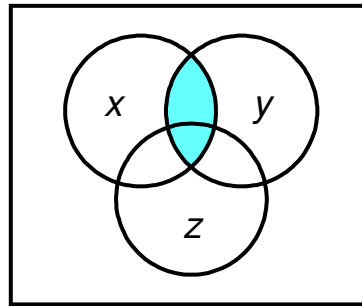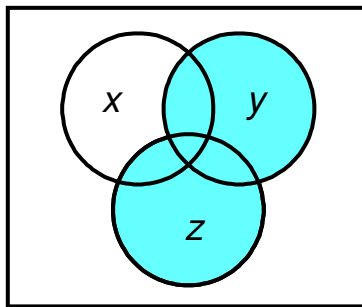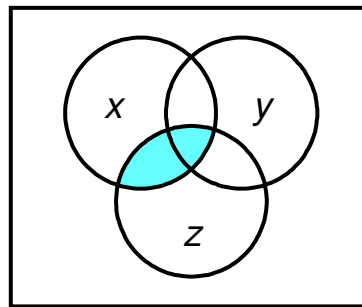
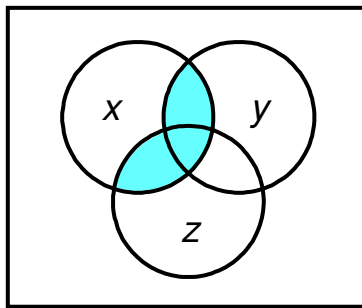$x \cdot \bar{y}$

$x \cdot y + z$

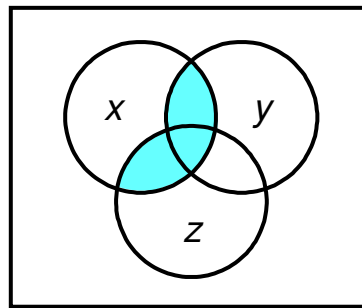**The Venn diagram representation**
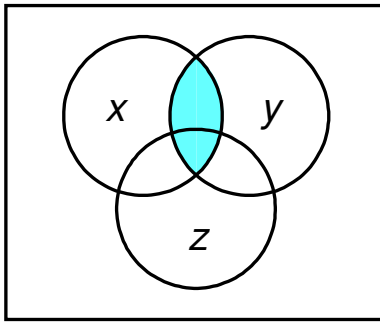
$x$

$x \cdot y$

$y + z$
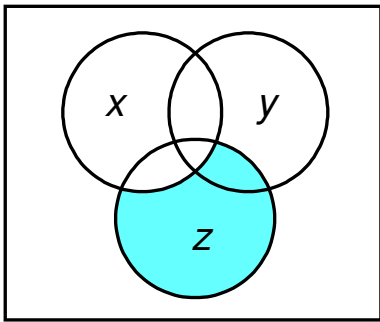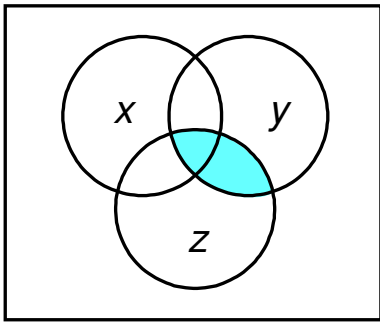
$x \cdot z$

$x \cdot (y + z)$

$x \cdot y + x \cdot z$

**Verification of the distributive property**

$$x \cdot y$$



$$x \cdot y$$



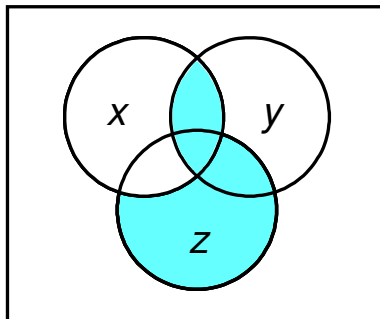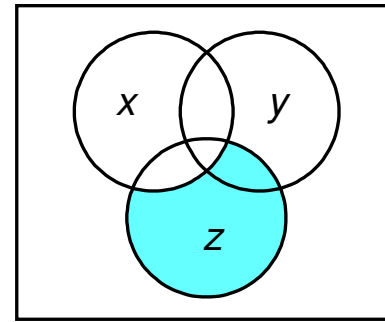$$\bar{x} \cdot z$$



$$\bar{x} \cdot z$$



$$y \cdot z$$
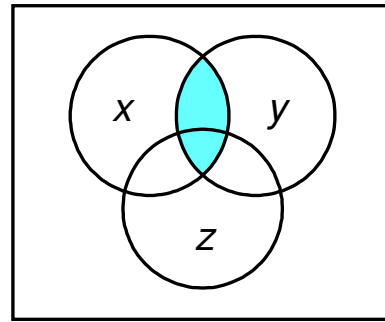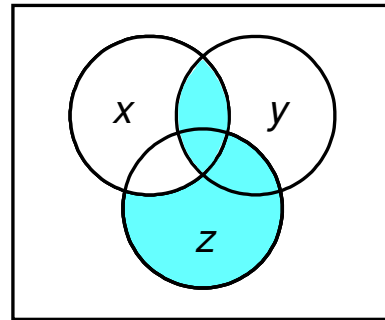


$$x \cdot y + \bar{x} \cdot z$$



$$x \cdot y + \bar{x} \cdot \bar{z} + y \cdot z$$

**Verification of**   $x \cdot y + \bar{x} \cdot z + y \cdot z = x \cdot y + \bar{x} \cdot z$