

MA0301  
ELEMENTARY DISCRETE MATHEMATICS  
NTNU, SPRING 2021

SET 4

**Deadline: Wednesday 24 February, 2021, 13:00.**

**Exercise 1.** Find the value of each of the following Boolean expressions if the values of the Boolean variables  $w, x, y, z$  are 1, 1, 0, 0, respectively.

a.  $\overline{xy} + \overline{x}\overline{y}$ .

b.  $w + \overline{x}y$ .

c.  $wx + \overline{y} + yz$ .

d.  $(wx + y\overline{z}) + w\overline{y} + \overline{(w + y)(\overline{x} + y)}$ .

**Exercise 2.** Simplify the following Boolean expressions.

a.  $xy + (x + y)\overline{z} + y$ .

b.  $x + y + \overline{(x + y + z)}$ .

c.  $yz + wx + z + [wz(xy + wz)]$ .

**Exercise 3.** Lewis, Zax: Exercise 3.5.

**Exercise 4.** Lewis, Zax: Exercise 3.6.

**Exercise 5.** Lewis, Zax: Exercise 3.8 a.