

T-79.194 Tietojenkäsittelyteorian seminaari
Linear equalities over reals (cont'd)
Linear inequalities over reals
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Exercises

Name _____

1. Consider the following set of linear inequalities:

$$\begin{aligned} -y &\leq 0 & (1) \\ -y - z + 2 &\leq x & (2) \\ 0 &\leq x & (3) \\ -y - 2 &\leq x & (4) \\ y - 3 &\leq x & (5) \\ x &\leq -2y + 6 & (6) \end{aligned}$$

Apply once the *x-ELIMINATION* rule (to all possible inequalities in this set).
Write down the resulting set of inequalities.

2. Consider the following set of linear inequalities:

$$0 \leq y \tag{7}$$

$$-x - y + 2 \leq z \tag{8}$$

$$0 \leq x \tag{9}$$

$$-x - y \leq 2 \tag{10}$$

$$-x + y \leq 3 \tag{11}$$

$$x + 2y \leq 6 \tag{12}$$

Examine by using FOURIER-MOTZKIN ELIMINATION, whether this set is consistent or not. Write down the details.

