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Tutorials for "Automated Reasoning WS18/19"
Exercise sheet 12

Exercise 12.1 (6.7):
Use the FM method to decide whether the following conjunction of inequations is satisfiable:

$$x + y \geq 16 \tag{1}$$
$$4x + 7y \leq 28 \tag{2}$$
$$2x - 7y \leq 20 \tag{3}$$
$$2x - 3y \geq -9 \tag{4}$$

Exercise 12.2 (6.6):
Check via FM whether the following formulas are true/false

1. $\forall x.\exists y.(2x + y > 7 \land x + y < 6)$

2. $\exists x.\forall y.(2x - y > 7 \land 2x + y > 7)$

Exercise* 12.3 (6.9):
Prove that unsatisfiability of a first-order Σ_{LA} formula over the free first-order logic semantics is undecidable.

It is not encouraged to prepare joint solutions, because we do not support joint exams.