Each million exposures by which Priceler falls short of the HIM goal costs Priceler a \$200,000 penalty because of lost sales.

Each million exposures by which Priceler falls short og the LIP goal costs Priceler a \$100,000 penalty because of lost sales.

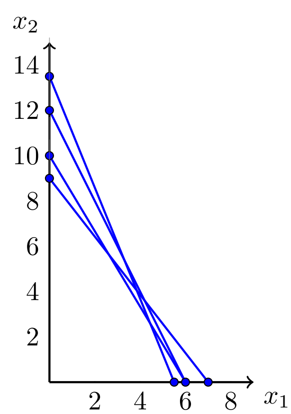
Each million exposures by which Priceler falls short of the HIW goal costs Priceler a \$50,000 penalty because of lost sales.

Burnit can now formulate an LP that minimizes the cost incurred in deviating from Priceler‘s three goals. The trick is to transform each inequality constraint in (21) that represents one of Priceler‘s goals into a equality constraint. Because we don‘t know whether the cost-minimizing solution will undersatisfy or oversatisfy a given goal, we need to define the following variables:

$$s_i^+ = \text{amount by which we numerically exceed the ith goal}$$
$$s_i^- = \text{amount by which we are numerically under the ith goal}$$

The s_i^+ and s_i^- are referred to as deviational variables. For the Priceler problem, we assume that s_i^+ and s_i^- is measured in millions of exposures. Using the **deviational variables**, we can rewrite the first constraints in (21) as

$$7x_1+3x_2+s_1^- - s_1^+ = 40 \qquad \text{(HIM constraint)}$$
$$10x_1+5x_2+s_2^- - s_2^+ = 60 \qquad \text{(LIP constraint)}$$
$$5x_1+4x_2+s_3^- - s_3^+ = 35 \qquad \text{(HIW constraint)}$$



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