Name:
Result:

1. *(4 points)*

Solve the following inequalities:

a) $|x + 2| < |2x - 1|$

b) $|x - 1| > 2x - 4$

2. *(7 points)*

Solve the following equations or systems of equations:

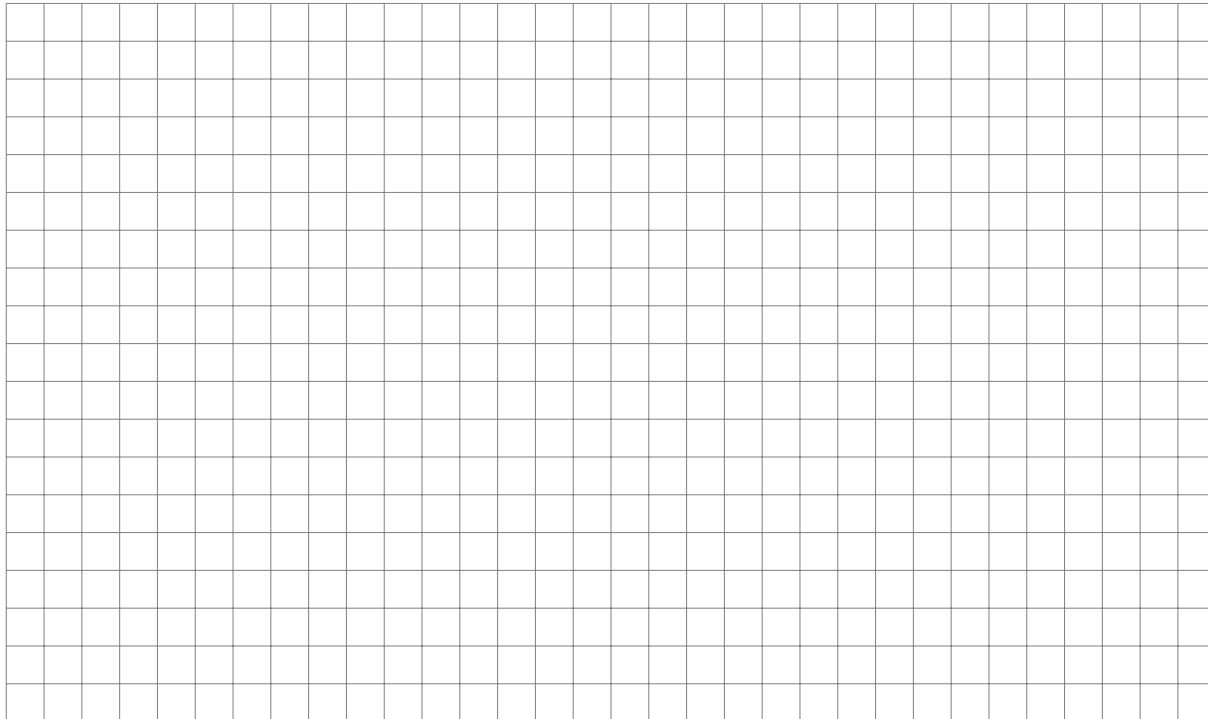a) $16 \cdot \left(\dfrac{1}{4}\right)^{x+1} = (\sqrt{2})^{4-x}$

b) $4^{x+1} - 33 \cdot 2^x + 8 = 0$

c) $\begin{cases} \dfrac{1}{27} \cdot 9^{x-1} = 3 \cdot (\sqrt{3})^{2y+4} \\[4mm] \left(\dfrac{1}{7}\right)^{1-x} = \left(\dfrac{1}{\sqrt{7}}\right)^{2y} \end{cases}$

3. *(5 points)*

Sketch the following functions. In each case clearly indicate coordinates of axes intercepts and equations of any asymptotes.

a) $f(x) = 2^{-x+1} - 1$

b) $f(x) = |-2^{-x} + 2|$