(12) $\neg \exists y \forall x \left(x > 3y \wedge (x < 6 \vee x \geq 4y) \right)$

$\forall y \exists x \neg \left(x > 3y \wedge (x < 6 \vee x \geq 4y) \right)$

$\forall y \exists x \left((x \leq 3y \vee (x \geq 6 \wedge x < 4y)) \right)$

$\bar{\varphi}(x) := T$

$T = \{-\infty, 6\}$

$\forall y \left(-\infty \leq 3y \vee (-\infty \geq 6 \wedge -\infty < 4y) \right) \vee \left(6 \leq 3y \vee (6 \geq 6 \wedge 6 < 4y) \right)$