Name __Prof. M__

Mathematics 2602
Quiz 2
Prof. Margalit
23 January 2013

1. Rephrase the following proposition as an English sentence. Do not use "for all" or "there exists" in your answer.

$$\forall y \; \exists x \; (x^3 = y) \quad x, y \in \mathbb{R}$$

Every real number has a cube root.

2. Rephrase the following proposition as an English sentence. Do not use "for all" or "there exists" in your answer.

$$\exists x \; \exists y \; ((3x + 2y = 34) \wedge (x + y = 12)) \quad x, y \in \mathbb{R}$$

The lines $3x+2y=34$ and $x+y=12$ intersect.

3. Determine the truth values of the following propositions.

- $\forall y \; \exists x \; (x^3 = y) \quad x, y \in \mathbb{R}$ T

- $\exists x \; \exists y \; ((3x + 2y = 34) \wedge (x + y = 12)) \quad x, y \in \mathbb{R}$ T

- $\exists x \; \forall y \; ((xy > 0) \wedge (y^2 + x = x)) \quad x, y \in \mathbb{R}$ F