

# Math 2283 - Introduction to Logic

Quiz #2 - 2016.01.15

Name: \_\_\_\_\_

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1. State if each of the following is (i) a sentence, (ii) a designatory function, (iii) a sentential function, or (iv) a constant.

(a) The mother of Alice and Bob.

(b) The son of  $x$  and  $y$ .

(c) The mother of Alice and Bob is June.

(d) The mother of Alice and Bob is  $x$ .

(e)  $\forall x (x^2 > y)$

(f)  $\forall x \exists y (x^2 > y)$

(g)  $x^2 > y$

(h)  $x^2 - y$

2. Determine if each of the following quantified statements is true or false.

(a)  $\exists x, y (x \cdot y > -1)$

(b)  $\forall x, y (x \cdot y > -1)$

(c)  $\forall x \exists y (x \cdot y > -1)$

(d)  $\exists y \forall x (x \cdot y > -1)$