CS 2102 - DMT1 - Spring 2020 — Luther Tychonievich
Administered in class friday march 6, 2020

Quiz 07

PROBLEM 1 *Convert to prose*

>   *S*: the set of all snakes
>   *R*: the set of all rabbits
> $E(x,y)$: x eats y
> $Y(x)$: x is yellow

Convert the following to simple, readable English:

1. $\exists r \in R \,.\, \forall s \in S \,.\, (E(s,r) \rightarrow \neg Y(s))$

PROBLEM 2 *Primes and factors*

2. _____ is the prime factorization of 18

3. _____ is the prime factorization of 81

4. _____ is the prime factorization of $9^{10} \cdot 6^{20}$

5. _____ is the set positive 1-digit numbers relatively prime with 10

PROBLEM 3 *Proof by contradiction*

Prove the following using proof-by-contradiction. You may use prose or symbols or any readable mix of the two.

6. $\dfrac{7}{3} \notin \mathbb{Z}$

Proof.