Name and surname:

U number:

Bridge - MGF 3301 - Section 001

Quiz 4
02/26/2020

Instructions: The total number of points for this quiz is 14. However, your final score will be the minimum between the total number of your points and 11. Calculators are not allowed (and actually not needed).

Exercise 1
(7 points)

Recall the following definition from the homework:

> **Definition**
>
> Given two integers a and b we say that a **divides** b, and we write $a|b$, if there exists an integer k such that
> $$b = ka.$$
> Moreover, we write $a \nmid b$ if a does not divide b.

Prove by contrapositive the following claim (please, **write down the contrapositive** of the statement first):

Claim: *Let a and b in $\mathbb{Z}$. If $5 \nmid ab$, then $5 \nmid a$ and $5 \nmid b$.*

EXERCISE 2
(7 points)

Prove by contradiction the following claim and **highlight what is the contradiction** (i.e. identify the proposition Q such that you have $Q \land (\sim Q)$). Note that you may use previous results proven in class. In case state them.

Claim: *For all a and b in $\mathbb{Z}$, $a^2 - 4b - 2 \neq 0$.*