

Name and surname:

U number:

Bridge - MGF 3301 - Section 001

Quiz 1 01/22/2020

Instructions: The total number of points of this quiz is 10. You will get an extra point if you solve correctly the last exercise. Calculators are not allowed (and actually not needed).

EXERCISE 1 (10 points)

(1) Recall the following definition:

Definition

Two propositional forms are **equivalent** if they have the same truth tables.

Prove that the following propositional forms are equivalent:

$$P \wedge (Q \vee R) \quad \text{and} \quad (P \wedge Q) \vee (P \wedge R).$$

(2) Determine the truth value of the above propositional forms, when P , Q and R are the following propositions:

- ▶ $P :=$ “Today is Wednesday January 23, 2020”;
- ▶ $Q :=$ “ $x = 1$ is a solution of the equation $x^2 - 3x + 1 = 0$ ”;
- ▶ $R :=$ “A triangle has three sides”.

Explain your answer fully and concisely.

EXERCISE 2 (Bonus - 1 point)

Anna promises to Vanessa:

“If 7 is even, then I’ll give you \$1,000”.

Which of the following is true? (Check the correct box.)

- Anna would keep her promise only in the case where she gives \$1,000 to Vanessa.
- Anna would keep her promise only in the case where she does not give \$1,000 to Vanessa.
- Anna would keep her promise if she gives \$1,000 to Vanessa or if she does not give \$1,000 to Vanessa.