

Name: _____

Translate the following sentences into propositional wffs. (2 pts each)

1. A or B, but not both.
2. If there is water on Mars, then there is possibility of life on other planets.
3. Either it will rain and I will stay home, or it won't rain and I will go hiking.
4. I will reward myself with a pumpkin spice latte if and only if I finish my homework and go jogging.
5. If both Suzy and Joe are going to the party, then Rachel won't go.

Translate the following arguments into correct propositional form using the sentence letters provided. Then determine whether the argument is **valid** or **invalid** using a **truth table**. You may use the simplification method. (5 pts each)

6. If you want to get an A on the test, then you should study for it and meet with the teacher beforehand.
You got an A on the test.
 \therefore You met with the teacher beforehand. (A, S, M)
7. I'll go to New Zealand this summer if and only if I save up enough money to go.
I won't save up enough money.
 \therefore I won't go to New Zealand this summer. (Z, M)

Determine whether the arguments are **valid** or **invalid** using **truth tables**. You may use the simplification method. (5 pts each)

8. $(\sim A \supset (\sim B \supset C))$
 A
 $\sim C$
 $\therefore \sim B$

9. $(C \supset (W \vee F))$
 $\sim W$
 $\sim F$
 $\therefore \sim C$

10. $((H \cdot J) \supset K)$
 H
 $\sim K$
 $\therefore \sim J$