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Activity 1-1 (28 Jun 2022)

1. Let propositions P = "you go to see the movie Harry Potter," Q = "the movie Harry Potter is good," and R = "you have a good time.". Express each sentence below as a propositional form using variables P , Q , and R .

1.0 (Example) *The movie Harry Potter is good.*

Q

1.1 You do not go to see the movie Harry Potter.

1.2 If Harry Potter is good and you go to see it, you will have a good time.

1.3 You have a good time, only if you do not go to see the movie Harry Potter.

1.4 If you go to see the movie Harry Potter and do not have a good time, the movie Harry Potter must be bad.

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Activity 1-2 (28 Jun 2022)

2. For each of these sentences, define appropriate propositional variables representing each proposition inside the statement and translate the statement into a propositional form.

<u>Statement and compounded proposition</u>	<u>Define propositional variables here</u>
2.0 (Example) It is cold. C	$C = \text{"It is cold."}$
2.1 It is raining or it is very hot.	
2.2 If you like Thai food, you will enjoy the trip to the Night Market.	
2.3 You can finish a marathon, only if you practice a lot and have strong will to fight.	
2.4 You either learn to understand the customer or you fail to make a good product.	

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Activity 1-3 (28 Jun 2022)

3. Predicates (from wikibook

https://en.wikibooks.org/wiki/Discrete_Mathematics/Logic/Exercises#Logic_Exercise_5)

The following predicates are defined:

- $\text{friend}(x)$ is “ x is a friend of mine”
- $\text{wealthy}(x)$ is “ x is wealthy”
- $\text{clever}(x)$ is “ x is clever”
- $\text{boring}(x)$ is “ x is boring”

With these predicates, you can write “John is clever” as $\text{clever}(\text{John})$.

Write each of the following propositions using predicate notation:

Propositions	Propositions in predicate notation
3.0 (Example) <i>John is clever.</i>	$\text{clever}(\text{John})$
3.1 Jimmy is a friend of mine.	
3.2 Sue is wealthy and clever.	
3.3 Jane is wealthy but not clever.	
3.4 Both Mark and Elaine are friends of mine.	
3.5 If Peter is a friend of mine, then he is not boring.	
3.6 If Jimmy is wealthy and not boring, then he is a friend of mine.	