Problem 1: Translate the following into English (recognize this definition?)
\[\forall \varepsilon > 0, \exists \delta > 0, \exists |x - a| < \delta \rightarrow |f(x) - L| < \varepsilon\]

Problem 2: Given the statements below:
Statement 1: Computer Science majors enjoy some of their math classes at VT.
Statement 2: There are some Engineers who love any science fiction movie

(a) Put each statement into symbolic logic form using multiple quantifiers
(b) Negate symbolically and put into everyday normal English sentence form.

Problem 3: Given the statements below, put each statement into symbolic logic form using multiple quantifiers
Statement 1: There are some rules that we all have to observe.
Statement 2: Each of us must develop our own study outline.

Problem 4: Given the following domains and predicate put the following statements into natural English form.

Domain D: all children (x = child)
Domain B: all books (y = book)
Predicate: P(x, y): x reads y

\[\forall x \in D, \exists y \in B \mid P(x, y)\]
\[\exists x \in D \mid \forall y \in B, P(x, y)\]
\[\exists y \in B \mid \forall x \in D, P(x, y)\]
\[\forall y \in B, \exists x \in D \mid P(x, y)\]

Problem 5:
If it does not rain or if it is not foggy, then the sailing race will be held and the life saving demonstration will go on. If the sailing race is held, then a trophy will be awarded. But no trophy was awarded. What is your conclusion?

Using symbolic logic explain your reasoning.
Problem 6:

All VA Tech Students like sports
Fred is a VA Tech Student
Fred likes sports

Is this a valid argument? Justify you conclusion.

Problem 7:

If you miss class, you will not do well in the class
Cindy does not do well in the class.
Cindy missed class

Is this a valid argument? Justify you conclusion.