There are 3 problems on 2 pages of this assignment.

1. Rewrite each of these statements in the form “if $p$, then $q$” in English.

(a) It is necessary to wash the boss’s car to get promoted.

(b) A sufficient condition for enrollment is that you pay the fees.

(c) You can access the library website only if you are a student.

(d) It is necessary to cross the freeway to get to campus.

(e) Your password is good only if it was used for less than 90 days.

(f) To graduate with honors, it is sufficient to have a 4.0 GPA.

(g) To be a citizen of this country, it is sufficient that you were born in the United States.

(h) It is necessary to have a key to open the door.

(i) I will remember the address only if I write it down.
2. Let \( p \) and \( q \) be the propositions \( p \): “You buy an ice cream cone.” and \( q \): “It is hot outside.”

(a) Write the conditional \( p \rightarrow q \) in English using the “only if” form.

(b) Write the converse of \( p \rightarrow q \) in English using the “necessary” form.

(c) Write the inverse of \( p \rightarrow q \) in English using the “sufficient” form.

(d) Write the contrapositive of \( p \rightarrow q \) in English using the “whenever” form.

3. Give the converse, contrapostive, and inverse of the following statement in “If..., then...” form. Clearly label which is which.

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\text{George P. Burdell comes to class only if there is a going to be a quiz.}
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