Inverse, Converse and Contrapositive:

Say P and Q are propositions. Given the implication $P \Rightarrow Q$, or $P \supset Q$

- its inverse is $\neg P \Rightarrow \neg Q$, or $\sim P \supset \sim Q$
- The converse is $Q \Rightarrow P$, or $Q \supset P$
- Its contrapositive is $\neg Q \Rightarrow \neg P$ or $\sim Q \supset \sim P$

Write the conditional statements for inverse, converse and contrapositive of the following implication:

1. If this book is interesting, then I am staying at home.
   - ☐ P: This book is interesting
   - ☐ Q: I am staying at home
   - ☐ -P -> -Q: If this book is not interesting, then I am not staying at home
   - ☐ Q -> P: If i am staying at home, then this book is interesting
   - ☐ -Q -> -P: If I am not staying at home, then this book is not interesting

2. If you are more than 60 years old, then you are entitled to a senior citizen's card.
   - ☐ P: You are more than 60 years old
   - ☐ Q: You are entitled to a senior citizen's card
   - ☐ -P -> -Q: If you are not more than 60 years old, then you are not entitled to a senior citizen's card
   - ☐ Q -> P: If you are entitled to a senior citizen's card, then you are more than 60 years old
   - ☐ -Q -> -p: If you are not entitled to a senior citizen's card, then you are not more than 60 years old