Recall the below *Previous Shown Results*, which are on the Ch. 1 Handout.

┌───┐
│   Previously Shown Results   │
│ **Lemma SEE**. The sum of two even integers is an even integer.   │
│ **Lemma SEO**. The sum of an even integer and an odd integer is an odd integer. │
│ **Lemma SOO**. The sum of two odd integers is an even integer.   │
│ **Lemma PEA**. The product of an even integer and any integer is an even integer. │
│ **Lemma POO**. The product of two odd integers is an odd integer.   │
└───┘

▷.   **Theorem B**. If m is an odd integer, then

$$3m^2 + 7m + 12$$

is an even integer.

►.   Prove Theorem B by using *Previous Shown Results* (which are in the above box).

Hints.

(1).   You should use a subset of: Lemma SEE, Lemma SEO, Lemma SOO, Lemma PEA, Lemma POO. A proof using the defintion of even and/or odd receive no credit.

(2).   Be sure to follow the Writing Guidelines for Mathematics Proofs given in §1.2 on pages 22–24.

(3).   Below the dotted line the format of a proof is started for you. Just remove the verbiage between the \begin{proof} and \end{proof}. Once you include a \begin{proof}, you must include after it a \end{proof} for the file to compile.

....

Proof. Start your proof's first paragraph here.

To start a new paragraph, leave a blank line (as was one here). Here goes the meat of your proof. It probably will take several lines.

Don't forget a concluding paragraph.   □