

▷. **Theorem A.** If  $m$  is an even integer, then

$$3m^2 + 2m + 3$$

is an odd integer.

▶. Prove Theorem A using the definitions of even integer and odd integer.

**Hints.**

- (1). You may not use Previously Shown Results, i.e., you may not use, from [Ch. 1 Handout](#): Lemma SEE, Lemma SEO, Lemma SOO, Lemma PEA, Lemma POO. Such a proof will 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.

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*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. □