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▷. **Theorem 5.** If  $x$  is an even integer, then

$$3x^2 + 2x + 3$$

is an odd integer.

Note symbolically:  $(\forall x \in \mathbb{Z}) [ x \text{ is even } \implies 3x^2 + 2x + 3 \text{ is odd } ]$

▶. Prove Theorem 5 using the definitions of even integer and odd integer.

▷. 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.

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