

Chapter 1

Real Numbers

Assessment based on Exercise 1.1 Question 2

Question 1:

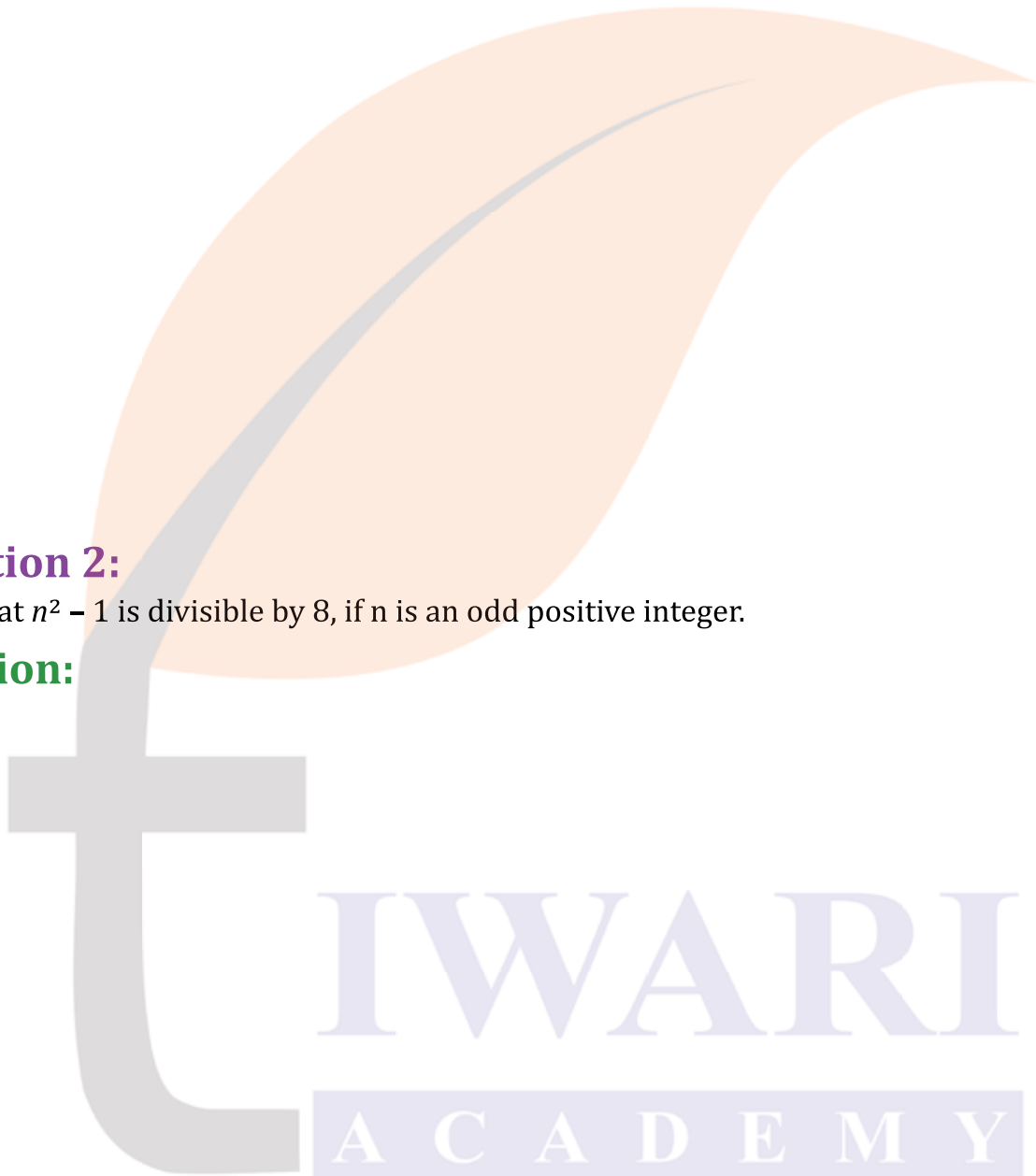
Prove that one of every three consecutive positive integers is divisible by 3.

Solution:

Question 2:

Show that $n^2 - 1$ is divisible by 8, if n is an odd positive integer.

Solution:



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Question 3:

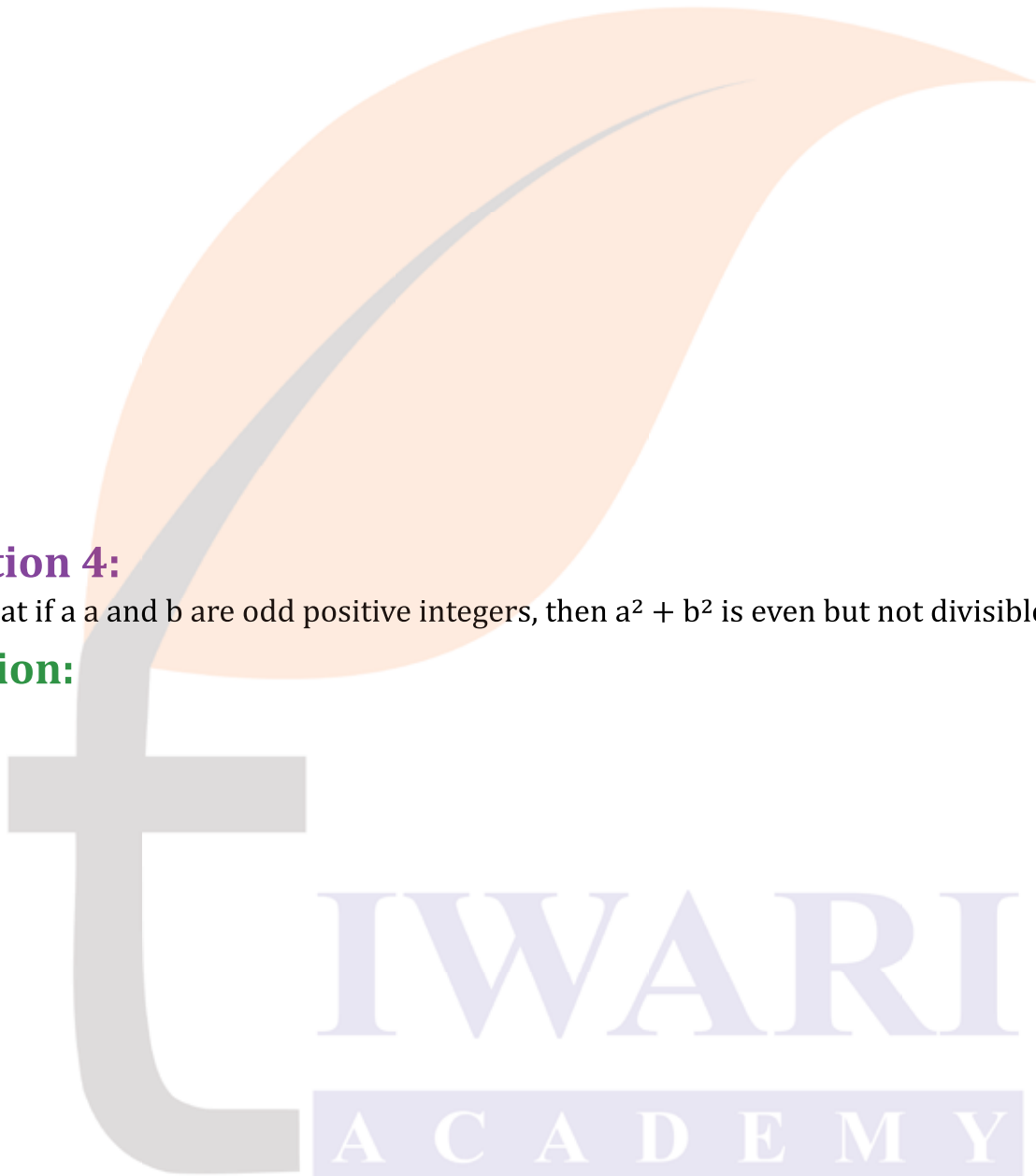
Prove that $n^2 - n$ is divisible by 2 for every positive integer n .

Solution:

Question 4:

Prove that if a and b are odd positive integers, then $a^2 + b^2$ is even but not divisible by 4.

Solution:



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Question 5:

Show that one and only one out of n , $n + 2$ or $n + 4$ is divisible by 3, where n is some integer q .

Solution:

Question 6:

Show that the square of any positive integer cannot be of the form $5q + 2$ or $5q + 3$ for any integer q .

Solution:

