

Delta 3 – Unit 10 Revision Questions

Q1.

Prove algebraically that the sum of the squares of any two consecutive even numbers is always a multiple of 4

(Total for question = 3 marks)

Q2.

Prove algebraically that

$$(2n + 1)^2 - (2n + 1) \text{ is an even number}$$

for all positive integer values of n .

(Total for Question is 5 marks)

Q3.

Prove algebraically that the difference between the squares of any two consecutive odd numbers is always a multiple of 8

(Total for question = 3 marks)

Q4.

Prove that

$$(2n + 3)^2 - (2n - 3)^2 \text{ is a multiple of } 8$$

for all positive integer values of n .

(Total for Question is 3 marks)

Q5.

Prove that $(n - 1)^2 + n^2 + (n + 1)^2 = 3n^2 + 2$

(Total for Question is 2 marks)

Q6.

Prove algebraically that the difference between the squares of any two consecutive integers is equal to the sum of these two integers.

(Total for question is 4 marks)

Q7.

Prove that the sum of the squares of any three consecutive odd numbers is always 11 more than a multiple of 12

(Total for question = 3 marks)