**Algebraic Proof**

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| **1)** If   is a positive integer, which of the following numbers is always odd?   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **A.** |  | **B.** |  | **C.** |  | **D.** |  | | [1] |
| **2)** If   is a positive integer, which of the following numbers is always even?   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **A.** |  | **B.** |  | **C.** |  | **D.** |  | | [1] |
| **3)** If   is a positive integer, which of the following shows two consecutive square numbers?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | **A.** | and | **B.** | and | |  | | | | | |  | **C.** | and | **D.** | and | | [1] |
| **4)** If   is a positive integer, then   is a multiple of:-   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **A.** | 5 | **B.** | 4 | **C.** | 6 | **D.** | 3 | | [1] |
| **5)** Prove, using algebra, that the sum of two consecutive whole numbers is always an odd number.   |  |  | | --- | --- | |  |  | |  |  | |  |  | | [1] |
| **6)** Prove that   is a multiple of 4, for all positive integer values of n.   |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | | [1] |
| **7)** Prove that   is a multiple of 8, for all positive integer values of n.   |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | | [1] |
| **8)** Prove algebraically that the difference between the squares of any two consecutive integers is equal to the sum of these two integers.   |  |  | | --- | --- | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | | [1] |

**Solutions for the assessment Algebraic Proof**

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| **1)** | **2)** |
| **3)** | **4)** |
| **5)**   So, as   is divisible by   and   is an odd number. Therefore, the sum of two consecutive whole numbers is always an odd number. | **6)**       So, as   is divisible by   then   is a multiple of 4, for all positive integer values of n. |
| **7)**       So, as   is divisible by   then   is a multiple of 8, for all positive integer values of n. | **8)** Sum of two consecutive integers:-     Difference between the squares of two consecutive integers:-       So they are equal |