

## 5.6 Geometry - Second Edition, Extension: Indirect Proof, Review Answers

Answers will vary. Here are some hints.

1. Assume  $n$  is odd, therefore  $n = 2a + 1$ .
2. Use the definition of an equilateral triangle to lead you towards a contradiction.
3. Remember the square root of a number can be negative or positive.
4. Use the definition of an isosceles triangle to lead you towards a contradiction.
5. If  $x + y$  is even, then  $x + y = 2n$ , where  $n$  is any integer.
6. Use the Triangle Sum Theorem to lead you towards a contradiction.
7. With the assumption of the opposite of  $AB + BC = AC$ , these three lengths could make a triangle, thus making  $A$ ,  $B$ , and  $C$  non-collinear.
8. If we assume that we have an even number of nickels, then the value of the coin collection must be a multiple of ten and we have a contradiction.
9. Assume that the last answer on the quiz is false. This implies that the fourth answer is true. If the fourth answer is true, then the one before it (the third answer) is false. However, this contradicts the fact that the third answer is true.
10. None. To prove this by contradiction, select each statement as the "true" statement and you will see that at least one of the other statements will also be true. If Charlie is right, then Rebecca