Thought experiment

Decide whether the following statements are true or false.

_____ **1.** The points $(-1, 1), (2, -1)$, and $(3, 0)$ all lie on the same line.
_____ **2.** If x is an integer, then $x^2 \geq x$.
_____ **3.** If x is an integer, then $x^3 \geq x$.
_____ **4.** For all real numbers x, $x^3 = x$.
_____ **5.** There exists a real number x such that $x^3 = x$.
_____ **6.** $\sqrt{2}$ is an irrational number.
_____ **7.** If $x + y$ is an odd number and $y + z$ is an odd number, then $x + z$ is an odd number.
_____ **8.** If x is an even integer, then x^2 is an even integer.
_____ **9.** If x is an integer, then x is even or x is odd.
_____ **10.** There are infinitely many primes.
_____ **11.** For any positive real number x there is a positive real number y such that $y^2 = x$.
_____ **12.** Every positive integer is the sum of distinct powers of 2.
_____ **13.** In a right angled triangle whose sides are a and b and whose hypothenuse is c, we have $c^2 = a^2 + b^2$.

Justify each of your answers. Once you are done, decide into which category your justification falls:

(i) I am confident that the justification I gave is conclusive.

(ii) I am not confident that the justification I gave is conclusive.

(iii) I am confident that the justification I gave is not conclusive.

(iv) I could not decide whether the statement was true or false.