

In-Class Worksheet

For each of the following, determine whether the sentence is

- a logical statement (write “LS”)
- a propositional function (write “PF”)
- neither (write “N”)

1. The integer 38 is even.
2. The integer -21 is even.
3. Is the integer $3^{18} - 3$ even?
4. It is not possible for $3^{18} - 3$ to be both even and odd.
5. The sum of x and y is 3.
6. The product of 4 and 5 is 16.
7. The lines $x = 0$ and $x = y$ intersect in one point.
8. Any two lines in the plane intersect in one point.
9. For any integer n , either $n = 0$ or $n^2 > 0$.
10. If the integer n is odd, is n^2 odd?
11. The number x must be either even or odd.
12. The product of $x + 1$ and $x - 1$ is $x^2 - 1$.
13. The integer $2^{859433} - 1$ is prime.
14. For any prime number p , the integer $2^p - 1$ is also prime.
15. For any positive integer n , the integer $2^{2^n} + 1$ is a prime.
16. If ℓ_1 and ℓ_2 are parallel lines, then any line m which intersects ℓ_1 also intersects ℓ_2 .
17. $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$
18. $A \cap (B - C) \cap D$