Proprietatile modulului

1. $|a| \geq a$.

2. $|a| \geq -a$.

3. $|a| = |-a|$.

4. $|a| \geq 0$ si
   $|a| = 0$ daca si numai daca $a = 0$.

5. $|a| = a$ daca si numai daca $a \geq 0$.

6. $|a| = -a$ daca si numai daca $a \leq 0$.

7. $|a| = \sqrt{a^2}$.

8. $|a + b| \leq |a| + |b|$ si
   $|a + b| = |a| + |b|$ daca si numai daca $ab \geq 0$.

9. $|a \cdot b| = |a| \cdot |b|$.

10. $\left| \dfrac{a}{b} \right| = \dfrac{|a|}{|b|}$.

11. $|a| = b, \ b \geq 0 \ \Leftrightarrow \ a = \pm b \ \Leftrightarrow \ \left[\begin{array}{l} a = b, \\ a = -b. \end{array} \right.$

12. $|a| < b, \ b > 0 \ \Leftrightarrow \ -b < a < b \ \Leftrightarrow \ \left[\begin{array}{l} a < b, \\ a > -b. \end{array} \right.$

13. $|a| > b, \ b > 0 \ \Leftrightarrow \ \left[\begin{array}{l} a > b, \\ a < -b. \end{array} \right.$

14. $|a| = |b| \ \Leftrightarrow \ (a - b)(a + b) = 0 \ \Leftrightarrow \ a = \pm b$.

15. $|a| > |b| \ \Leftrightarrow \ (a - b)(a + b) > 0 \ \Leftrightarrow \ a \in (-\infty; -|b|) \cup (|b|; +\infty) \ \Leftrightarrow \ -|a| < b < |a|$.

16. $|a|^2 = a^2$.