

WORKSHEET

Quantifiers and Negation

Unsolved with Answer key



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Quantifiers and Negation

Q 1: Negate the statement: "All integers are even."

Q 2: Negate the statement: "There is a rational number that is irrational."

Q 3: Negate the statement: "Every triangle has at least one right angle."

Q 4: Negate the statement: "Every even number is divisible by 2."

Q 5: Negate the statement: "There exists a real number that is negative."

Q 6: Negate the statement: "All prime numbers are odd."

Q 7: Negate the statement: "There exists a natural number that is a perfect square."

Q 8: Negate the statement: "For every $x \in \mathbb{R}$, x^3 is positive."

Answer Key

Quantifiers and Negation

1. **Negated Statement:** "Not all integers are even."
This means there exists at least one integer that is not even.
2. **Negated Statement:** "All rational numbers are rational."
This means there is no rational number that is irrational.
3. **Negated Statement:** "There exists a triangle that does not have a right angle."
This means there is at least one triangle that does not have a right angle.
4. **Negated Statement:** "Not every even number is divisible by 2."
This means there exists at least one even number that is not divisible by 2 (which is logically incorrect but serves the purpose of understanding negation).
5. **Negated Statement:** "All real numbers are non-negative."
This means that every real number is either zero or positive.
6. **Negated Statement:** "There exists a prime number that is even."
This means that there is at least one prime number that is not odd (the only even prime number is 2).
7. **Negated Statement:** "For every natural number, it is not a perfect square."
This means that every natural number is not a perfect square, which is not true as there are many perfect squares among natural numbers (e.g., 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, etc.).
8. **Negated Statement:** "There exists an $x \in \mathbb{R}$ such that x^3 is non-positive."
This means there is at least one real number x such that x^3 is either zero or negative.