

2025 June AMC8 Week 1 Day 3 - New Patterns

1 (1分) Consider the following operation: $a \oplus b = a - b^2$. What is the value of $4 \oplus [5 \oplus (-2)]$?

- A. 2 B. 3 C. 4 D. 5 E. -2

2 (1分) Consider these two operations: $2 \# 4 = 2 + 2.5 + 3 + 3.5$, $5 \# 3 = 5 + 5.5 + 6$. What is the value of $10 \# 5$?

- A. 10 B. 12 C. 55 D. 50 E. 15

3 (1分) Define the operation $A \otimes B = \frac{KA - B}{2}$. Given that $5 \otimes 3 = 11$, find the value of K .

- A. 3 B. 4 C. 5 D. 8 E. 11

4 (1分) Let a and b be rational numbers. Define the operations: $a * b = \sqrt[3]{a} - \sqrt{b}$,
 $a \wedge b = a^2 - b^2$.

Compute $(-1) \wedge (8 * 16)$.

- A. -1 B. -2 C. -3 D. -4 E. -6

5 (1分) For two natural numbers a and b , their least common multiple (LCM) minus their greatest common divisor (GCD) is defined as $a \pm b$, $a \pm b = [a, b] - (a, b)$. What is the value of 125 ± 25 ?

- A. 0 B. 25 C. 50 D. 100 E. 125