Integer Operation Rules

Integer Addition Rules

When adding integers with the **same sign**, find the sum of the numbers. The answer will have the same sign as the original numbers.

$3 + 7 = 10$

The answer is **positive** because both numbers are positive.

$-5 + (-6) = -11$

The answer is **negative** because both numbers are negative.

When adding integers with **different signs**, find the difference of the numbers. The answer will have the same sign as the number with the larger absolute value.

$-2 + 18 = 16$

The difference of 18 and 2 is 16. The answer is **positive** because 18 has the larger absolute value.

$4 + (-10) = -6$

The difference of 10 and 4 is 6. The answer is **negative** because –10 has the larger absolute value.

Integer Subtraction Rules

When subtracting integers, it's the same as **adding** the **opposite**.
So, you can change a subtraction problem into an addition problem.

$-9 - 4 \longrightarrow -9 + (-4)$

$-2 - (-7) \longrightarrow -2 + 7$

Then use the same rules as adding integers.

$-9 + (-4) = -13$

Since the signs are the same, find the sum.
The answer is **negative** because both numbers are negative.

$-2 + 7 = 5$

Since the signs are different, find the difference.
The difference of 7 and 2 is 5. The answer is **positive** because 7 has the larger absolute value.

Integer Multiplication and Division Rules

When multiplying or dividing two integers with the **same sign**, the answer will be **positive**.

$-4 \times (-10) = 40$

$15 \div 3 = 5$

When multiplying or dividing two integers with **different signs**, the answer will be **negative**.

$-3 \times 7 = -21$

$54 \div (-9) = -6$