Algebra

FUNCTIONS (ALGEBRA SUMMARY)

WHAT ARE THEY?

-> A RELATIONSHIP WHERE EACH INPUT (x) HAS ONLY ONE OUTPUT (y).

-> "y is a function of x" written as: $y = f(x)$

KEY CONCEPTS

-> DOMAIN: All possible INPUTS (x-values).

-> RANGE: All possible OUTPUTS (y-values).

-> VERTICAL LINE TEST: If a vertical line intersects a graph MORE than once, it's NOT a function.

COMMON TYPES

-> LINEAR: $y = mx + b$ (straight line, m = slope, b = y-intercept)

-> QUADRATIC: $y = ax^2 + bx + c$ (parabola, U-shaped)

-> EXPONENTIAL: $y = a * b^x$ (growth or decay)

-> SQUARE ROOT: $y = \sqrt{x}$

-> ABSOLUTE VALUE: $y = |x|$ (V-shaped)

NOTATION

-> f(x): Function notation. f(3) means "evaluate the function f when x=3"

-> COMPOSITION: f(g(x)) means "plug the function g(x) into the function f"

IMPORTANT SKILLS

-> Evaluating functions.

-> Graphing functions.

-> Finding domain and range.

-> Identifying function types.

-> Transforming functions (shifting, stretching, reflecting).

_·_