Restricting the Domain of a Function

Name _____

Date _____ Period _____

Domain

The largest set of real numbers, x, for which the function yields another real number, y.

Range

The set of real numbers, y, yielded from the domain, x, of the function.

Domain $f(x) = 2x + 1$ Range

Functions with an Unrestricted Domain

Linear Functions

Square Functions

Cube Functions

Absolute Value Functions

Exponential Functions

Functions with a Restricted Domain

Some functions require a limited domain.

Rational Functions

Functions with a Restricted Domain

Some functions require a limited domain.

Rational Functions

$$f(x) = \frac{x}{2x - 6}$$

The denominator of a rational function cannot be equal to zero

Domain:

Functions with a Restricted Domain

Some functions require a limited domain.

Square Root/Radical Functions

Functions with a Restricted Domain

Some functions require a limited domain.

Square Root/Radical Functions

$f(x) = \sqrt{4x + 24} + 5$

Domain:

Functions with a Restricted Domain

Some functions require a limited domain.

Logarithmic Functions

Functions with a Restricted Domain

Some functions require a limited domain.

Logarithmic Functions

Domain:

$f(x) = 3 \cdot \log(3x - 21) + 4$

Functions with a Restricted Domain

Some functions require a limited domain.

Rational Functions

$$f(x) = \frac{1}{x}$$

The denominator of a rational function cannot be equal to zero

Square Root / Radical Functions

$$f(x) = \sqrt{x}$$

The expression under the radical must be greater than or equal to zero.

Logarithmic Functions

$$f(x) = \log x$$

The expression of which you take the log must be greater than zero.