

TOPIC: INTRODUCTION TO EXPONENTIAL FUNCTIONS

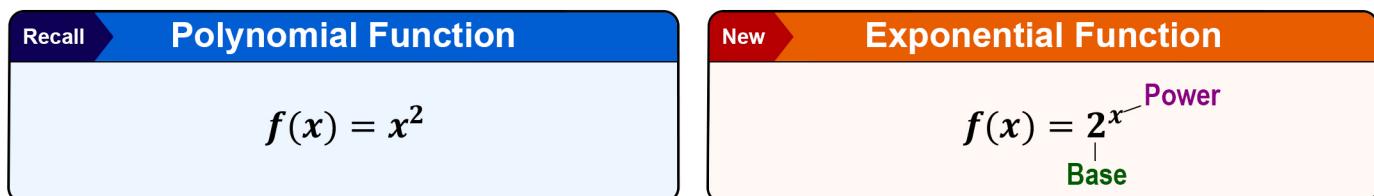
Exponential Functions

◆ **Polynomial** functions have a variable base with a number exponent; **exponential** functions have the opposite!

- Exponential functions have a:

- **Base** that is _____, _____, & ___ 1.

- **Exponent (power)** that contains a _____.



EXAMPLE Determine if each function is an exponential function.

(A) $f(x) = \left(\frac{2}{3}\right)^x$

Exponential function?

Power: _____

Base: _____

(B) $f(y) = 1^y$

Exponential function?

Power: _____

Base: _____

(C) $f(x) = 10^{x+1}$

Exponential function?

Power: _____

Base: _____

◆ You will be asked to evaluate exponential functions for specified values of x .

- For exponents that cannot easily be done by hand, type **(BASE)** **(POWER)** into a calculator.

EXAMPLE Evaluate the exponential function $f(x) = 2^x$ for each given value of x .

(A) $x = 4$

(B) $x = -3$

(C) $x = 3.14$

(D) $x = 12$

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PRACTICE

Determine if each function is an exponential function. If so, identify the power & base, then evaluate for $x = 4$.

(A)

$$f(x) = (-2)^x$$

Exponential function?

Power: _____

Base: _____

$$f(4) = \underline{\hspace{2cm}}$$

(B)

$$f(x) = 3(1.5)^x$$

Exponential function?

Power: _____

Base: _____

$$f(4) = \underline{\hspace{2cm}}$$

(C)

$$f(x) = \left(\frac{1}{2}\right)^x$$

Exponential function?

Power: _____

Base: _____

$$f(4) = \underline{\hspace{2cm}}$$