

CHAPTER 1

Writing Exponential Functions from Tables

I can write a function from a table.

- I can write an exponential function from a table, using common ratios.

EXPONENTIAL EQUATION

Exponential function formula:

$$y = a(B)^x$$

What do you plug in?

$a =$ *Starting point*

$B =$ *Common ratio*

What is the first term?

Where $x=1$

The amount it multiplies by.

EXPONENTIAL FUNCTIONS

Determine if the relationship is exponential. If so, determine a function relating the variable.

x	y
1	2
2	3
3	5
4	8
5	12

$$> 3 \div 2 = 1.5$$

$$> 5 \div 3 = 1.66$$

$$> 8 \div 5 = 1.6$$

$$> 12 \div 8 = 1.5$$

Is it exponential? **no**

What is the starting point (a)?

What is the common ratio (B)?

Write the equation in $y=a(B)^x$ form:

EXPONENTIAL FUNCTIONS

Determine if the relationship is exponential. If so, determine a function relating the variable.

x	y
1	-1
2	-2
3	-4
4	-8
5	-16

$$> -2 \div (-1) = 2$$

$$> -4 \div (-2) = 2$$

$$> -8 \div (-4) = 2$$

$$> -16 \div (-8) = 2$$

Is it exponential? *yes*

What is the starting point (a)? $x=1, y=-1$
So, $a=-1$

What is the common ratio (B)? *It multiplies by 2.*
 $B=2$

Write the equation in $y=a(B)^x$ form: $Y=-1(2)^x$

EXPONENTIAL FUNCTIONS

Determine if the relationship is exponential. If so, determine a function relating the variable.

x	y
1	4
2	10
3	25
4	62.5
5	156.25

$$> 10 \div 4 = 2.5$$

$$> 25 \div 10 = 2.5$$

$$> 62.5 \div 25 = 2.5$$

$$> 156.25 \div 62.5 = 2.5$$

Is it exponential? *yes*

What is the starting point (a)? $x=1, y=4$
So, $a=4$

What is the common ratio (B)? *It multiplies by 2.5*
 $B=2.5$

Write the equation in $y=a(B)^x$ form: $Y=4(2.5)^x$

EXPONENTIAL FUNCTIONS

Determine if the relationship is exponential. If so, determine a function relating the variable.

x	y
1	26
2	24
3	22
4	20
5	18

$$> 24 \div 26 = .923$$

$$> 22 \div 24 = .917$$

$$> 20 \div 22 = .909$$

$$> 18 \div 20 = .9$$

Is it exponential? *no*

What is the starting point (a)?

What is the common ratio (B)?

Write the equation in $y=a(B)^x$ form:

EXPONENTIAL FUNCTIONS

Determine if the relationship is exponential. If so, determine a function relating the variable.

x	y
1	81
2	27
3	9
4	3
5	1

$$> 27 \div 81 = 1/3$$

$$> 9 \div 27 = 1/3$$

$$> 3 \div 9 = 1/3$$

$$> 1 \div 3 = 1/3$$

Is it exponential? *yes*

What is the starting point (a)? $x=1, y=81$
So, $a=81$

What is the common ratio (B)? *It multiplies by 1/3.*
 $B=1/3$

Write the equation in $y=a(B)^x$ form: $Y=81(1/3)^x$