Section 12.1 Exponential Functions

The function $f(x) = 42.2(1.56)^x$ represents the avg. amount spent, in dollars, at a mall, if you spend x hours there.

$f(x)$ is an exponential function

How much will Tyler spend if he spends 4 hours at the mall?

$$f(4) = 42.2(1.56)^4$$

$42.2 * 1.56 \wedge 4 = \$250$

ex: $7^{-1.3} = .0797$ $\quad 7 \wedge -1.3$

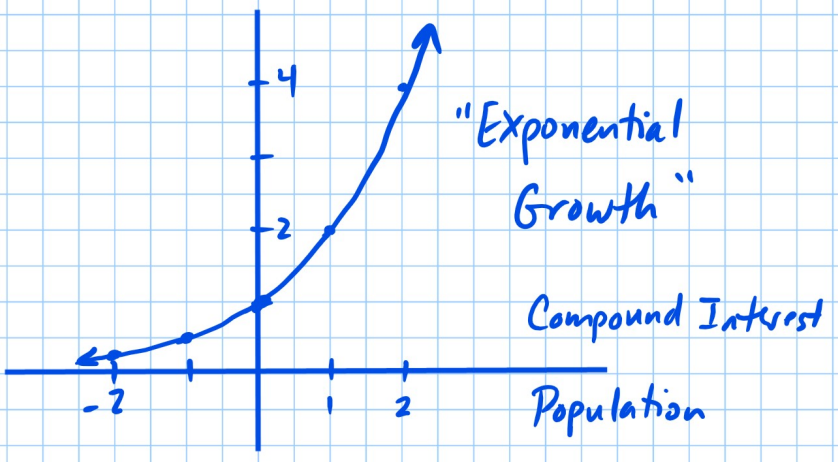
$6^{\sqrt{11}} = 380.92$

Graph $y = 2^x$

x	y
-2	0.25
-1	0.5
0	1
1	2
2	4

$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$

$2^{-1} = \frac{1}{2^1} = \frac{1}{2}$

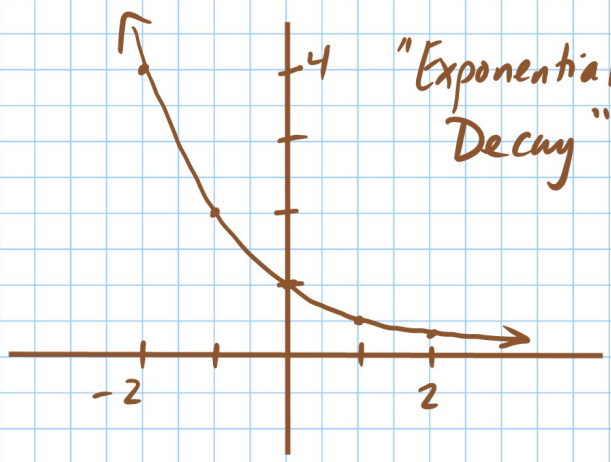


ex: $y = \left(\frac{1}{2}\right)^x = \left(2^{-1}\right)^x = 2^{-x}$

x	y
-2	4
-1	2
0	1
1	0.5
2	0.25

$2^{-(-2)} = 2^2 = 4$

$2^{-(-1)} = 2^1 = 2$



"Exponential Decay"

Radioactive Substances

Car Value

$f(x+h)+k$

h left k up

ex: $y = 2^{x+1} + 3$

x	y
-2	3.5
-1	4
0	5
1	
2	

$2^{-2+1} + 3 = 2^{-1} + 3$

$2^{-1+1} + 3 = 2^0 + 3$

$2^{0+1} + 3 = 2^1 + 3$