

EXPONENTIAL FUNCTIONS SUMMARY

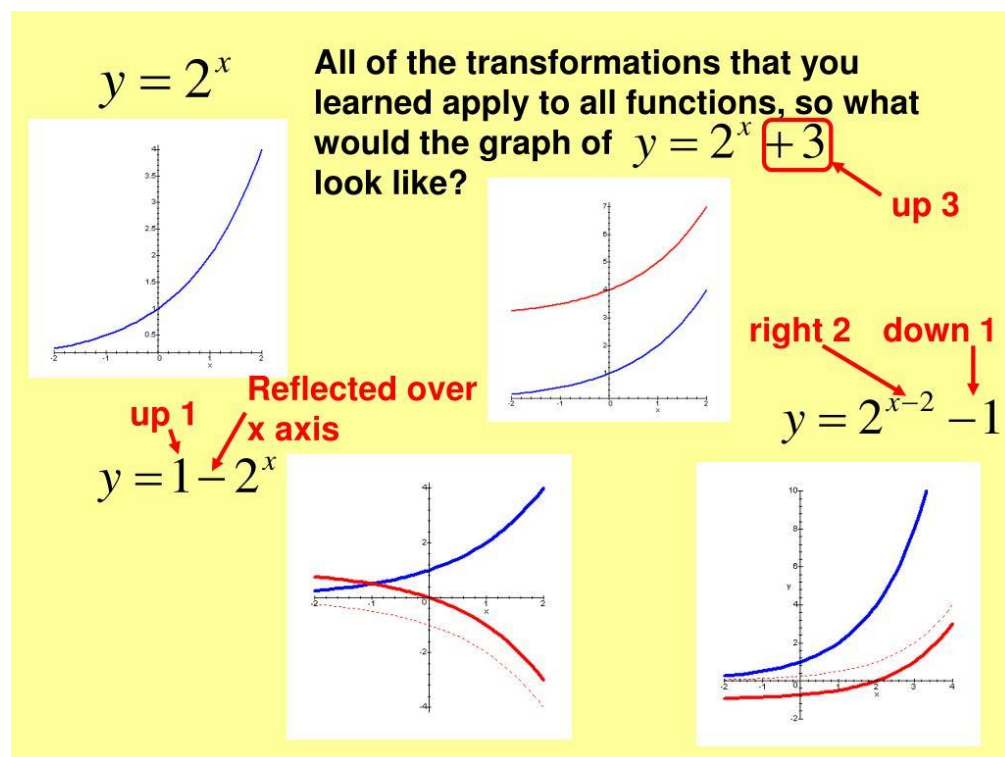
Definitions:

$$x^0 = 1$$

Exponent Rules For $a \neq 0, b \neq 0$	
Product Rule	$a^x \times a^y = a^{x+y}$
Quotient Rule	$a^x \div a^y = a^{x-y}$
Power Rule	$(a^x)^y = a^{xy}$
Power of a Product Rule	$(ab)^x = a^x b^x$
Power of a Fraction Rule	$\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$
Zero Exponent	$a^0 = 1$
Negative Exponent	$a^{-x} = \frac{1}{a^x}$
Fractional Exponent	$a^{\frac{x}{y}} = \sqrt[y]{a^x}$

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Graphing Exponential Functions



$$Y = -2(3^{(x-4)}) + 5$$

- Flips on x -axis
- 2 amplifies by 2
- 4 shifts right 4 on x-axis
- 5 shifts up 5 on y-axis

When in doubt, graph it out.

Negative exponent – take reciprocal + post exp

Insert complete the square with coefficient

Insert example of fraction roots to factored form