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Exponential Graphs

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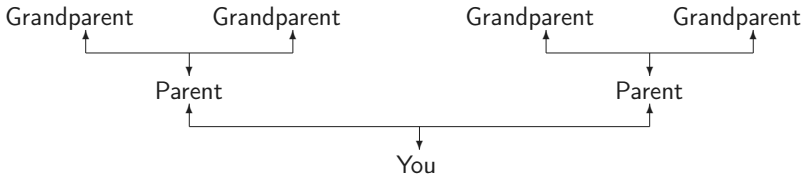
Exponential equations

Let us look at the number of ancestors a person has.

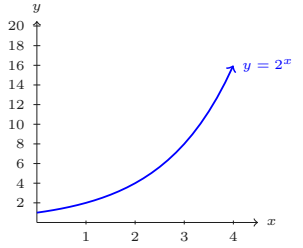


We could continue this indefinitely, but let us instead look at this information in a table.

Generations back (x)	0	1	2	3	4	5	6	7	8
Number of ancestors (y)	1	2	4	8	16	32	64	128	256

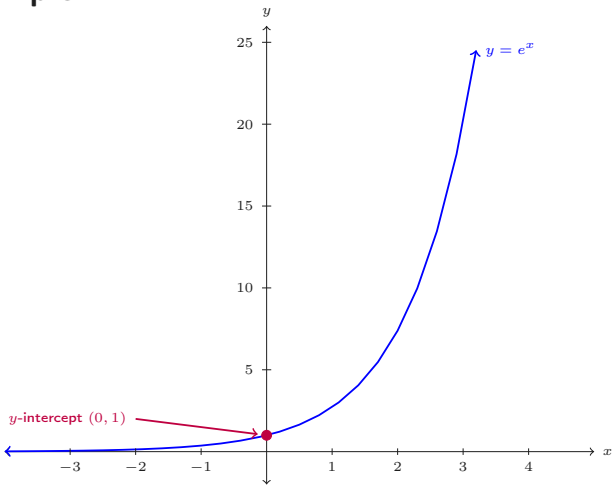
Exponential equations: Growth

Your graph should look something like the one below.



- The equation to this curve is $y = 2^x$. We call this type of graph an **exponential growth curve** and often use it in population growth studies.
- The name refers to the position of the x in the *exponent* of the equation.
- As the number of generations back (x) increases, the number of ancestors (y) becomes greater and greater. The curve grows steeper and steeper.

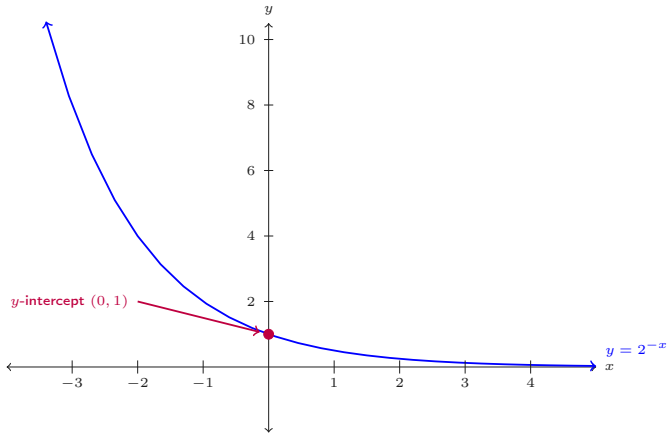
Exponential growth graph: Another example



Exponential equations: Decay

- Consider the equation to the curve $y = 2^{-x}$
- We call this type of graph an **exponential decay curve**.
- This time as x takes on more positive values, the curve comes closer and closer to the x-axis but never touches it.
- Exponential decay curves occur in such areas as science when we talk about radio active decay and in business when we talk about depreciation.

Exponential decay Graph



Further help

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