Understanding Einstein: The Special Theory of Relativity

A Stanford University Online Course

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Math Review (Introductory video lecture outline)

1. How exponents work

Examples (using powers of 2): $2^4 = 2x2x2x2 = 16$, $2^1 = 2$, $2^0 = 1$, $2^{-2} = 1/2^2 = 1/4$, $2^3x2^5 = 2^{3+5} = 2^8 = 256$

2. Square roots

3. Writing a + b as (a)(1+b/a), and $a^2 + b^2$ as $(a^2)(1+b^2/a^2)$

4. Writing a/b + c/d as (ad + bc)/(bd) (i.e., creating a common denominator in order to add the two terms)

5. Basic plotting of y vs. x

Examples of $y = x^2$ (parabola) and y = Ax + B (a line with slope A and y-intercept B)

Graphical meaning of larger vs. smaller values for the slope of a line, and a negative slope