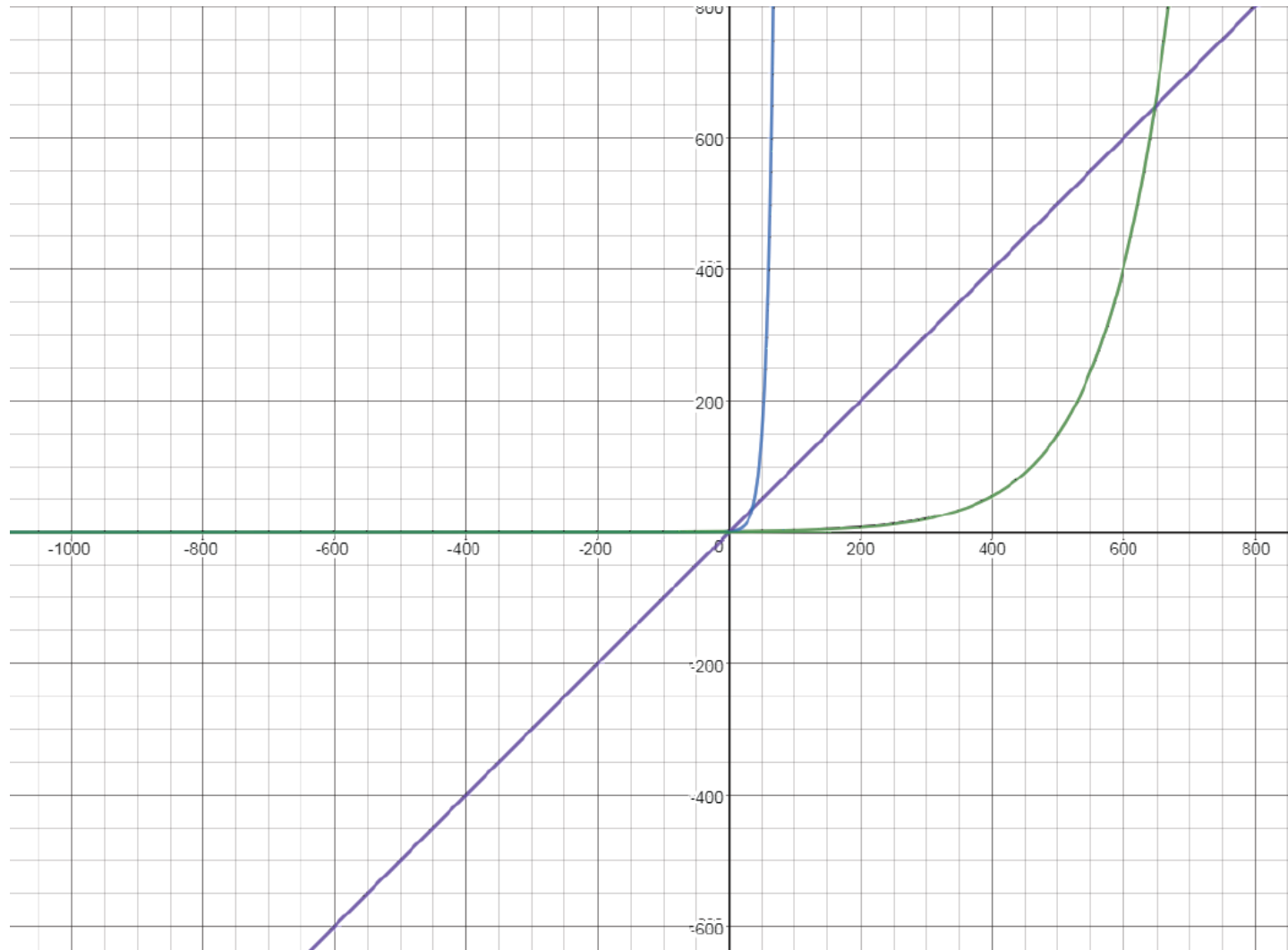


# Linear vs 10% and 1% exponential compounding



## Rule of 72 for DJIA:

72 divided by annual growth rate = number of years it will take to double

(72 divided by 7% = 10 years for doubling, on average)



# An Exponential: Long-run World Population

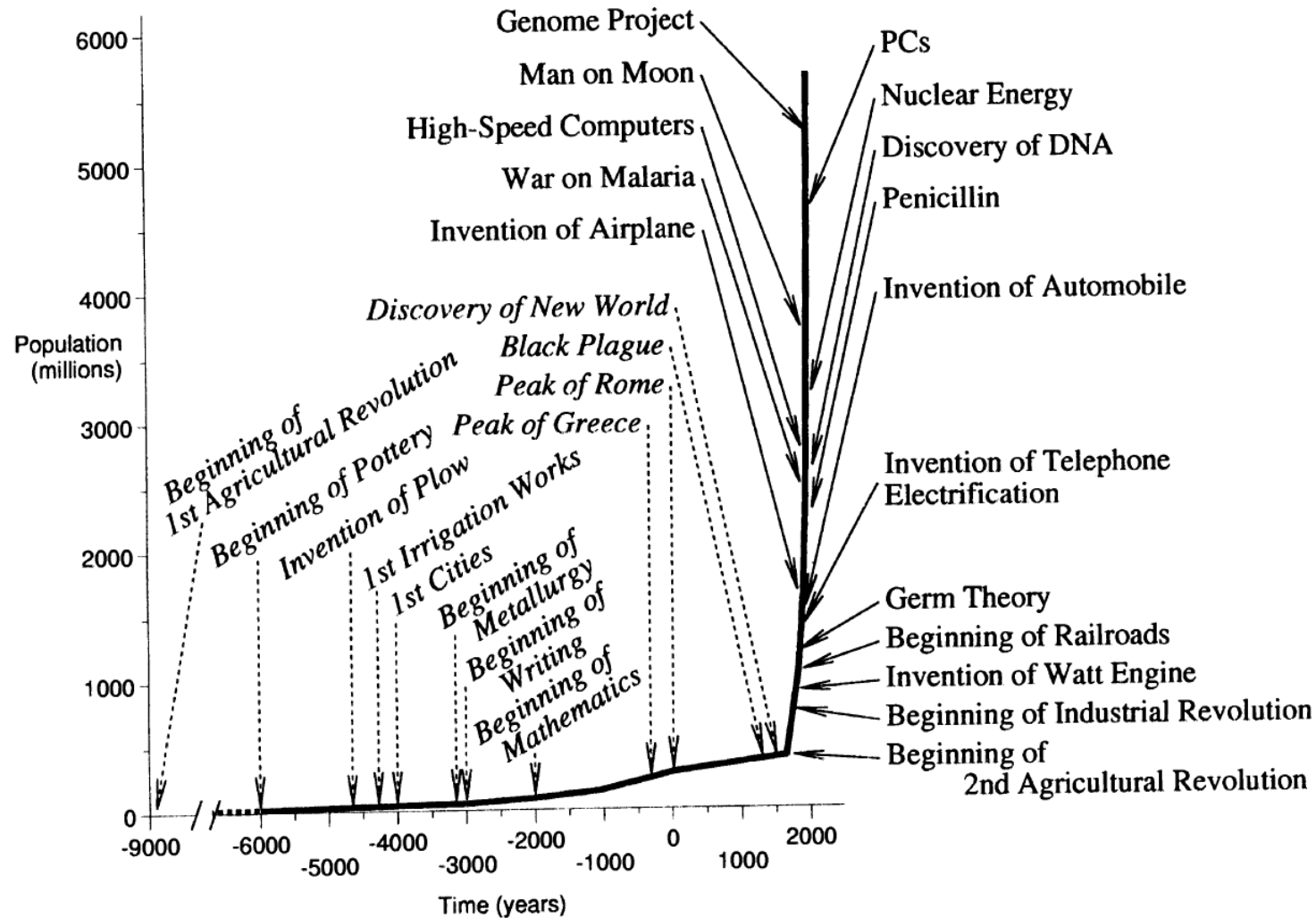
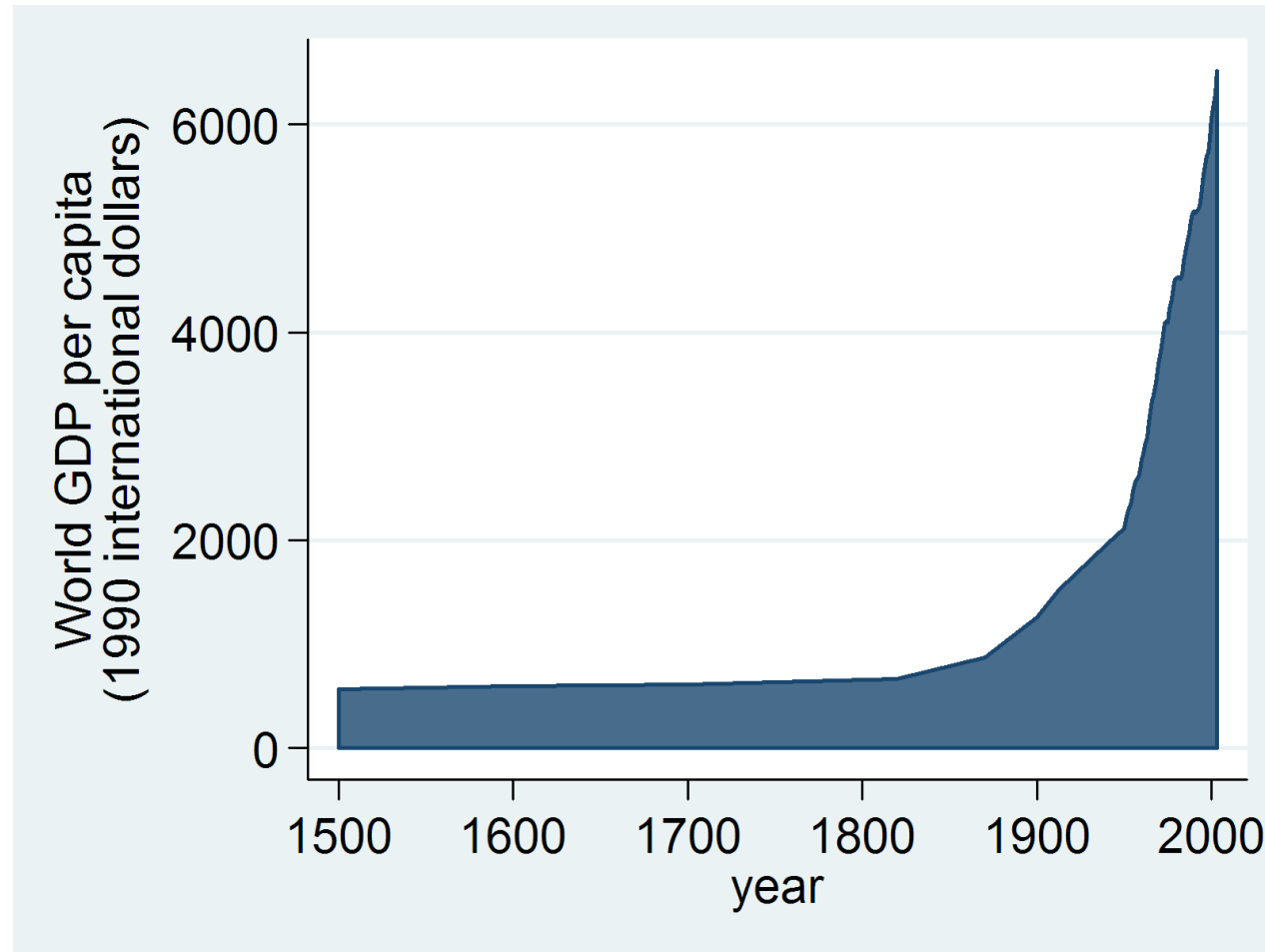
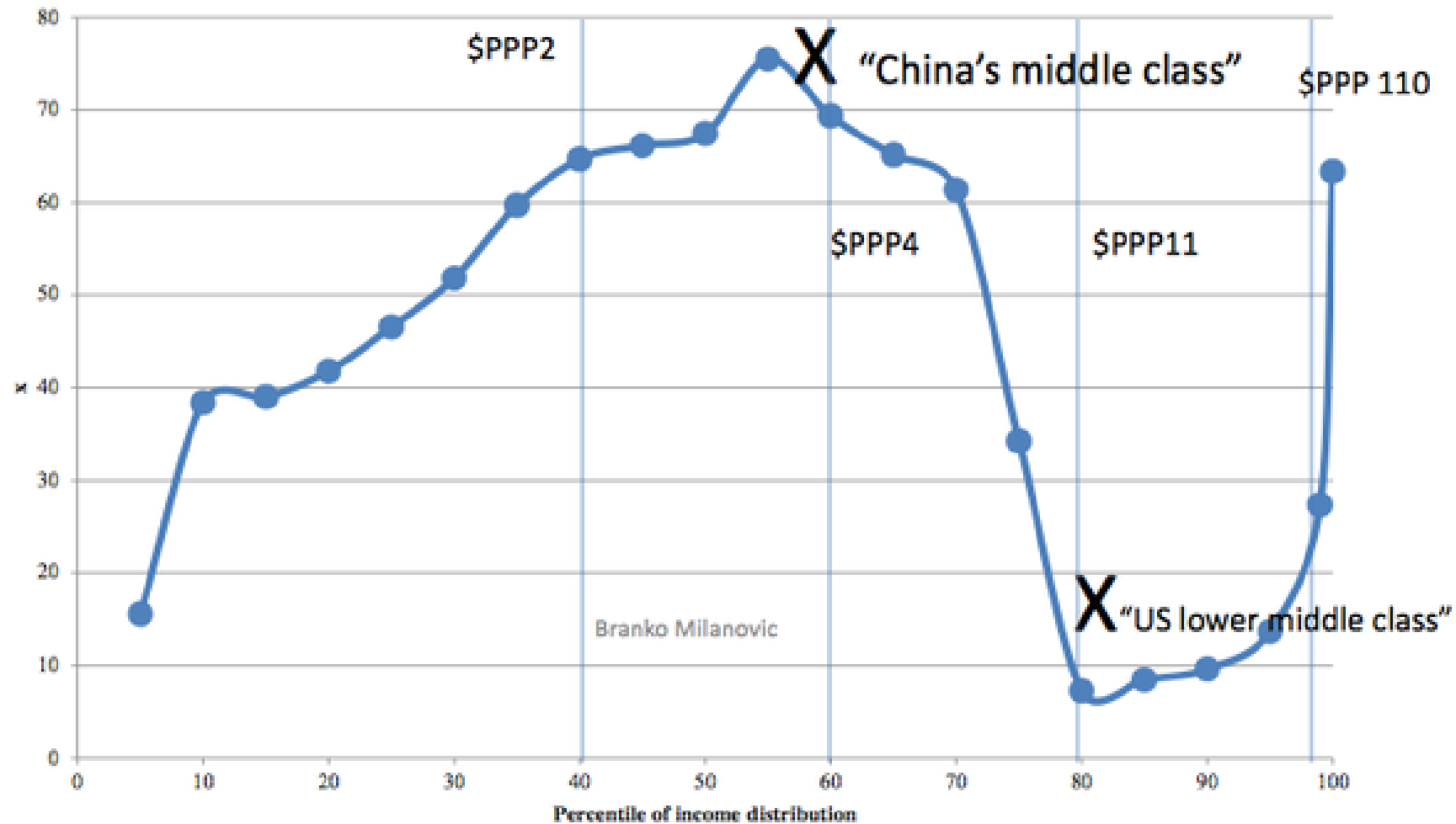


FIGURE 1. THE GROWTH OF THE WORLD POPULATION AND SOME MAJOR EVENTS IN THE HISTORY OF TECHNOLOGY

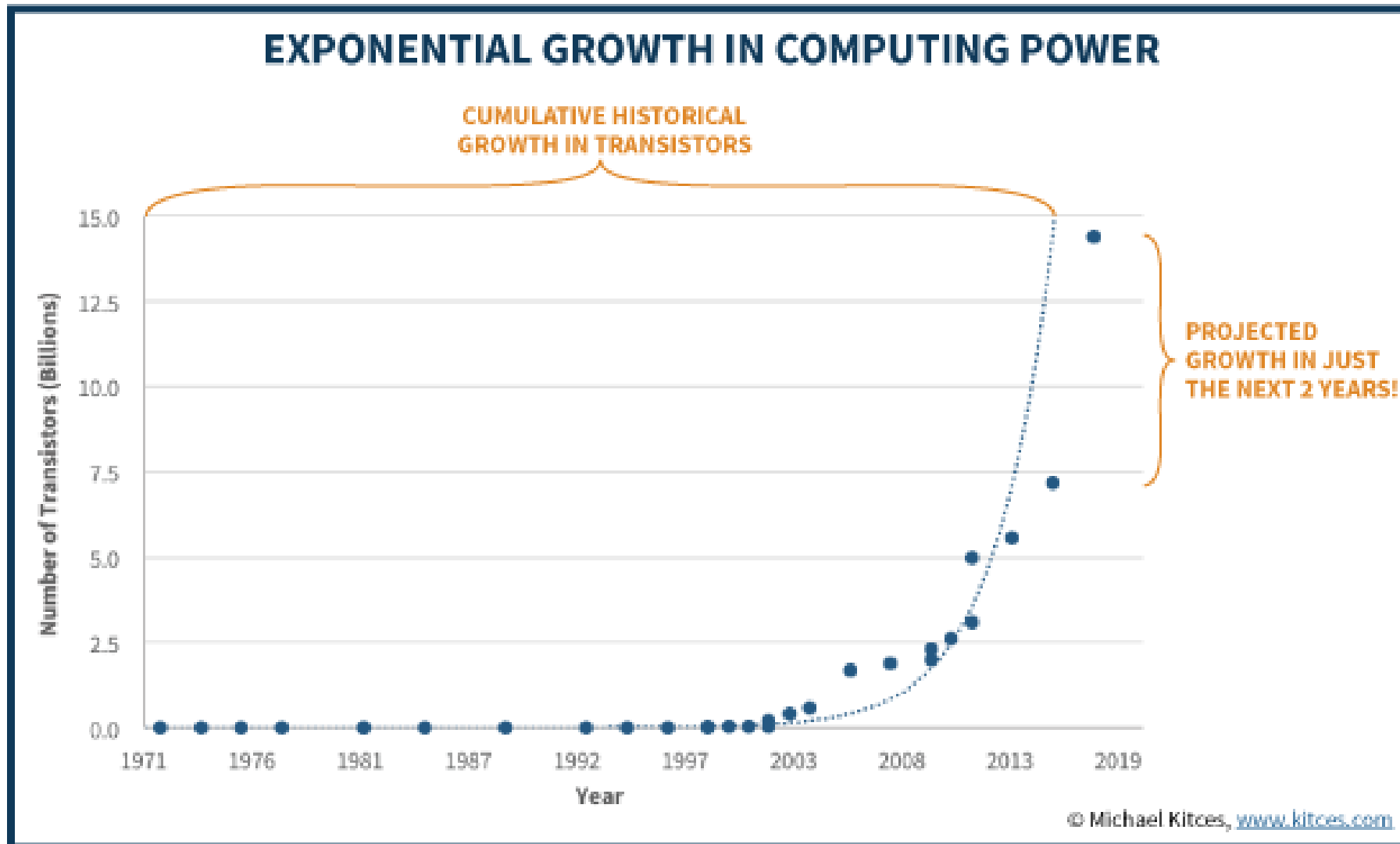
## An Exponential: World GDP per capita



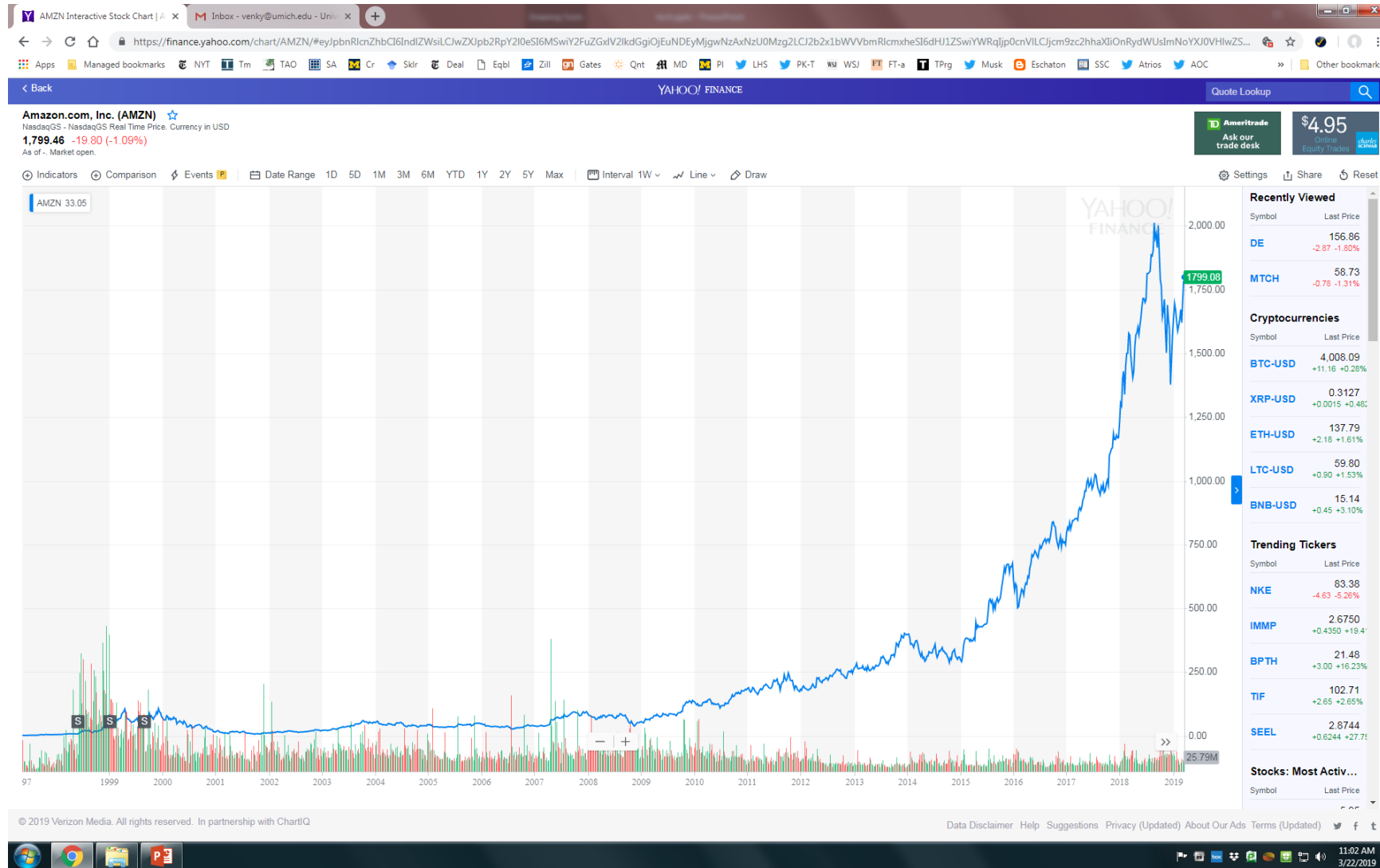
# Real income growth at various percentiles of global income distribution, 1988-2008 (in 2005 PPPs)



A lot more problems can be computed now than 50 years ago



# AMZN \$100,000 goes to ... \$100,000,000



## Look up Max Charts in Google Finance

- AAPL
- MSFT
- AMZN
- Intel
- Nvidia



Berkshire Hathaway: \$10,000 goes to ... \$240,000,000  
S&P: \$10,000 goes to ... \$1,500,000

## Beware of Mutual fund fees

	<u>in Per-Share Market Value of Berkshire</u>	<u>in S&amp;P 500 with Dividends Included</u>
Compounded Annual Gain – 1965-2017	20.9%	9.9%
Overall Gain – 1964-2017 . . . . .	2,404,748%	15,508%

# Elon Musk on Twitter – Why are successful Tech Leaders so antsy?

