How long will I live?

Most Babies Born Today May Live Past 100

By JOSEPH BROWNSTEIN
ABC News Medical Unit
Oct. 1, 2009

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If you live to be one hundred, you've got it made.
Very few people die past that age.

George Burns
(January 20, 1896 – March 9, 1996)

How long do we live?

Cannot answer for an *individual*, but can make a statement about a *group*.

How long do we live?

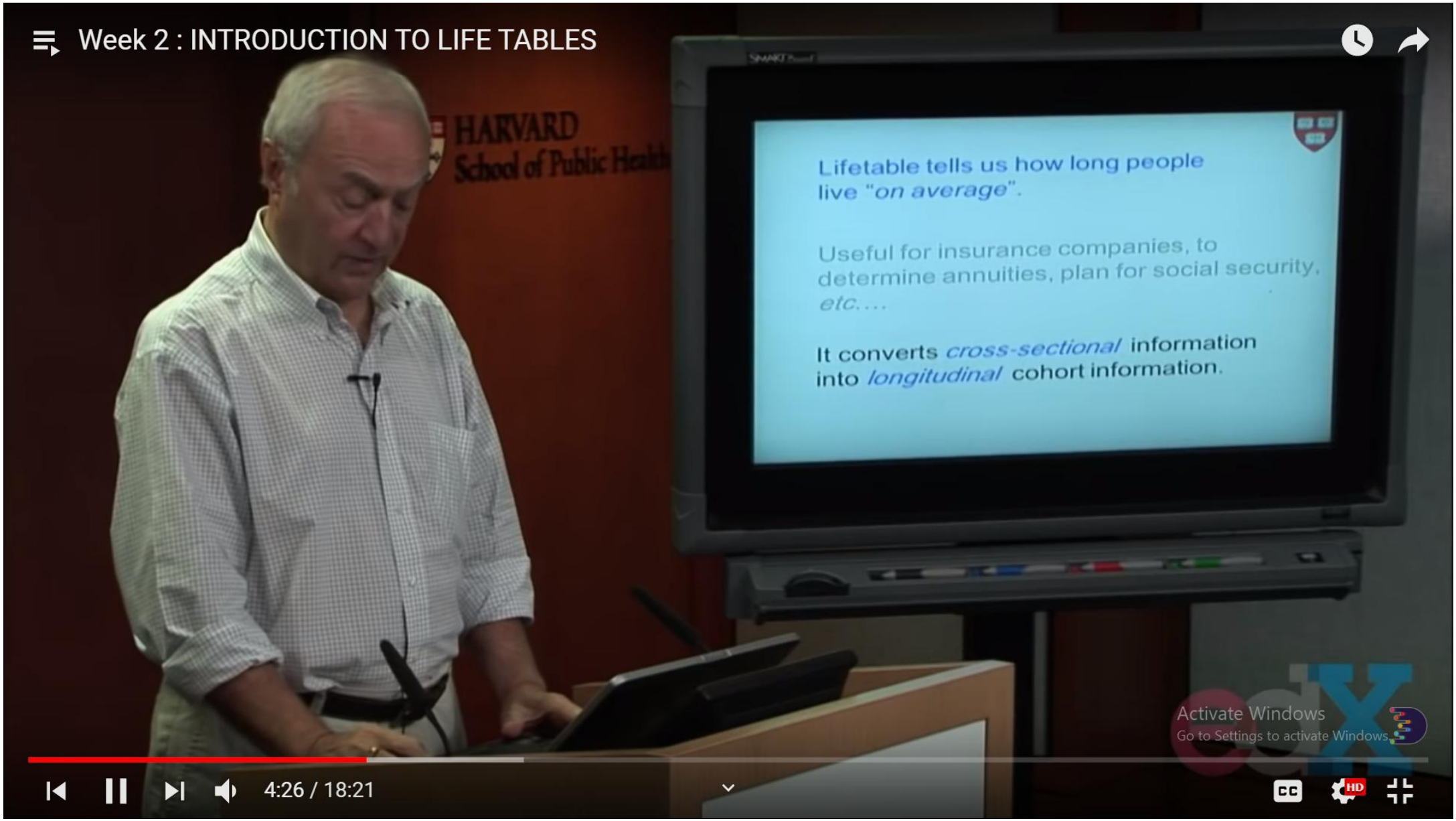
Cannot answer for an *individual*, but can make a statement about a *group*.

Romans built on the observed constancies

Halley showed us how to calculate the Lifetable

Lifetable tells us how long people live "*on average*".

Useful for insurance companies, to determine annuities, plan for social security, *etc*....


Week 2 : INTRODUCTION TO LIFE TABLES
HARVARD
School of Public Health
Lifetable tells us how long people live "on average".
Useful for insurance companies, to determine annuities, plan for social security, etc....
It converts cross-sectional information into longitudinal cohort information.
4:26 / 18:21
Activate Windows
Go to Settings to activate Windows.

Average Life Span; or how long do we live?

Suppose we have a population of 10 people and we follow them till they die and here are their life spans:

1, 2, 10, 20, 35, 45, 50, 60, 70, 80

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So the average life span is:

$$\frac{1+2+10+20+35+45+50+60+70+80}{10} = \boxed{37.3}$$


Activate Windows
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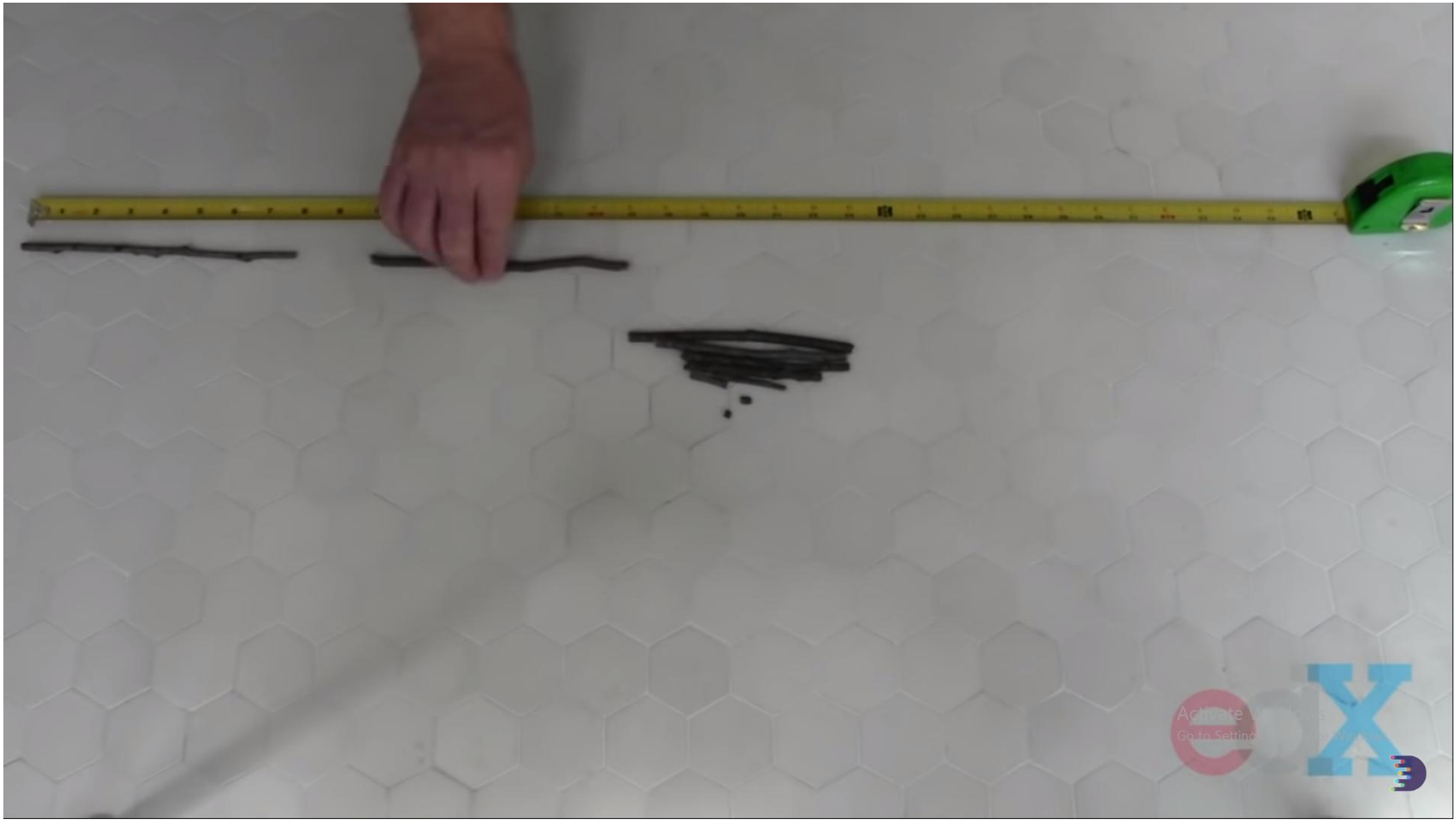

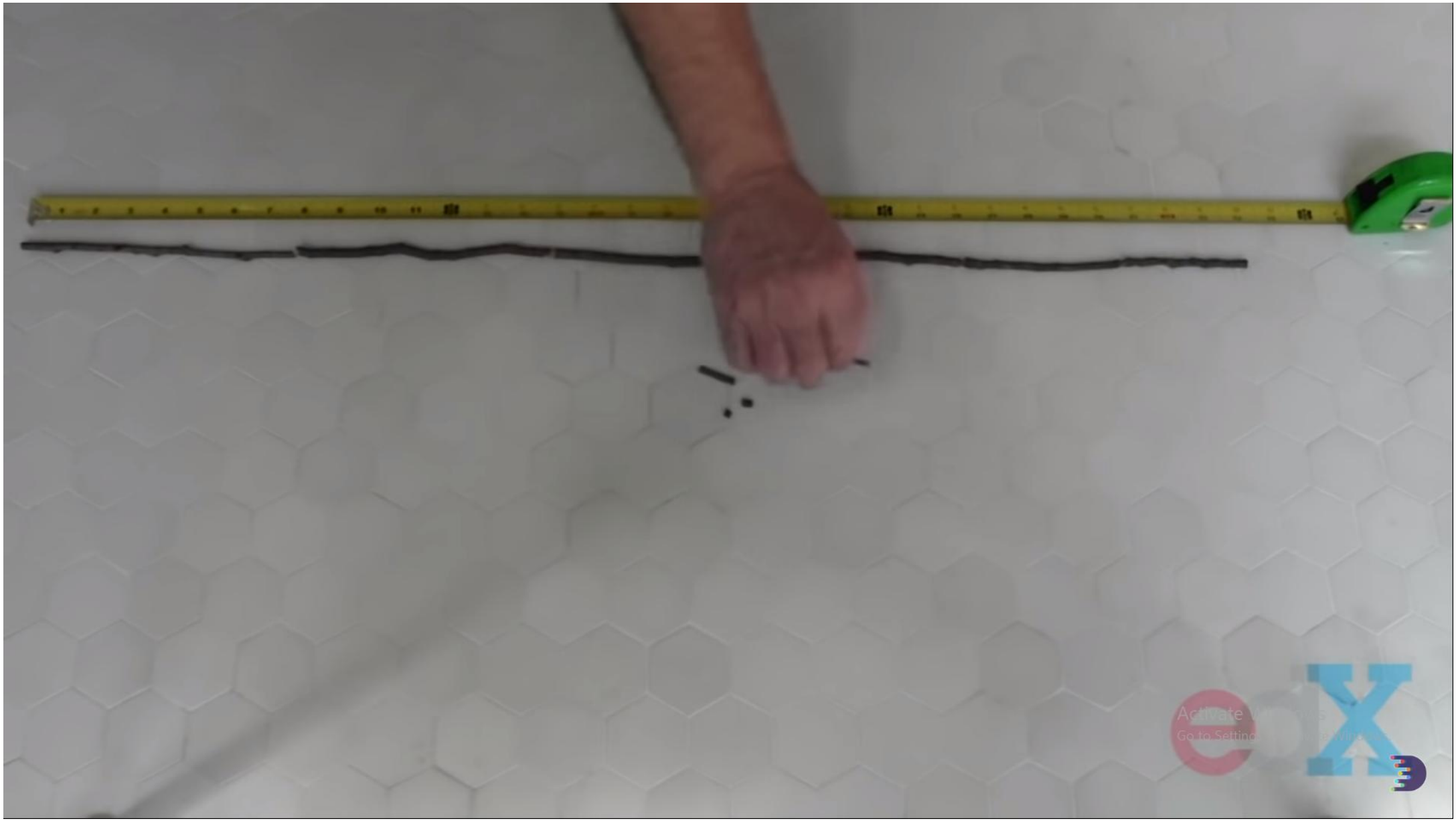

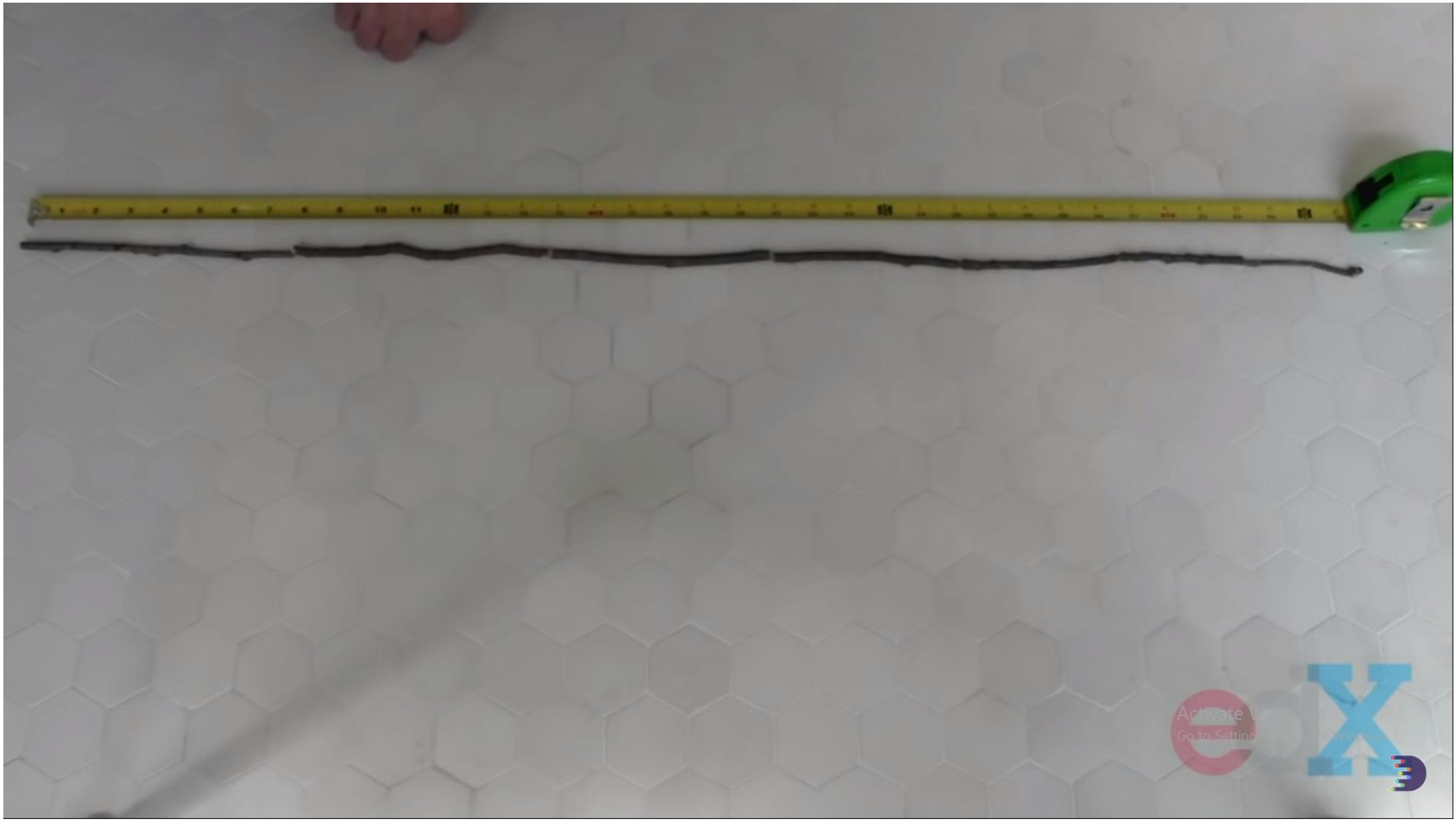

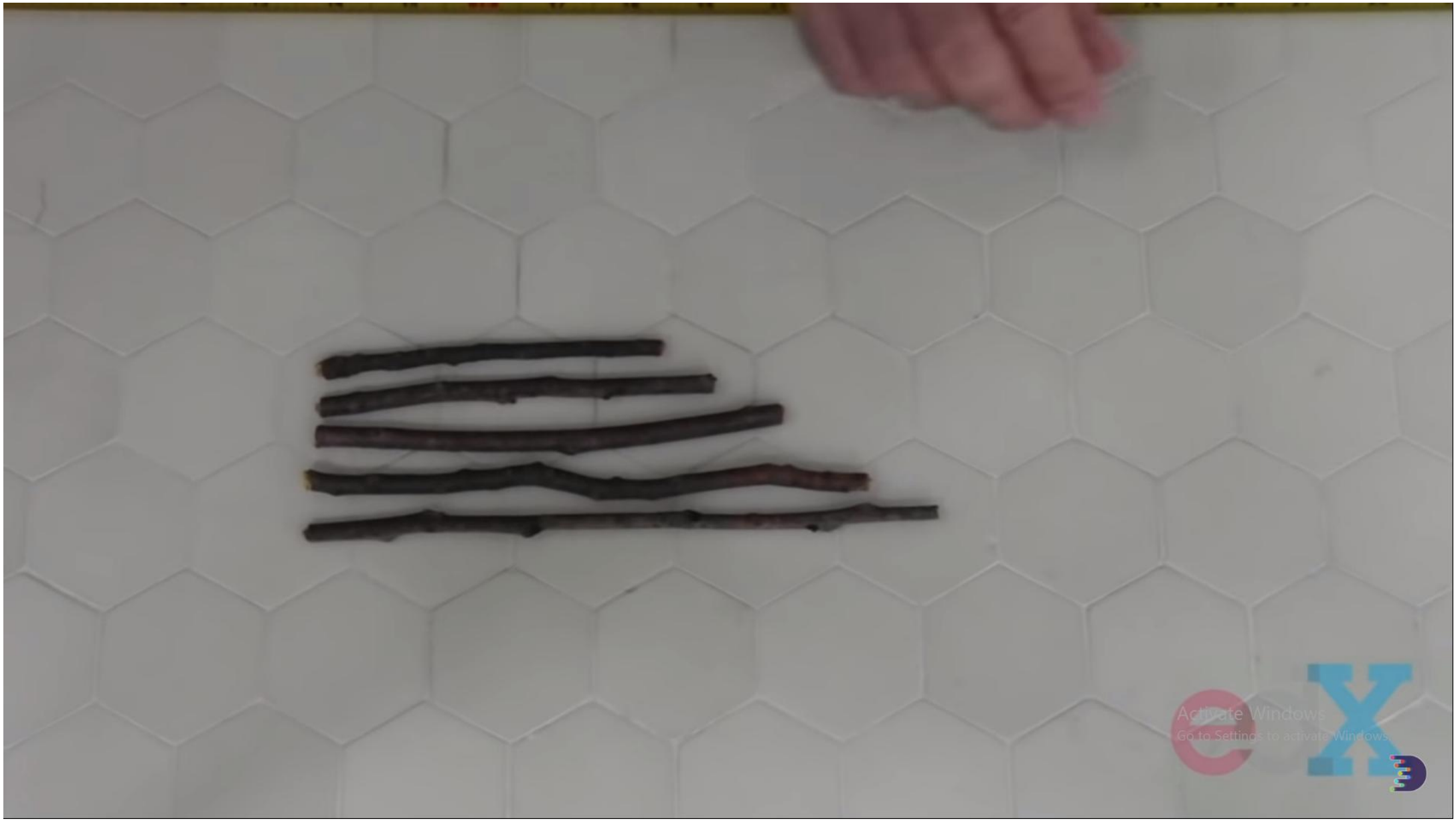
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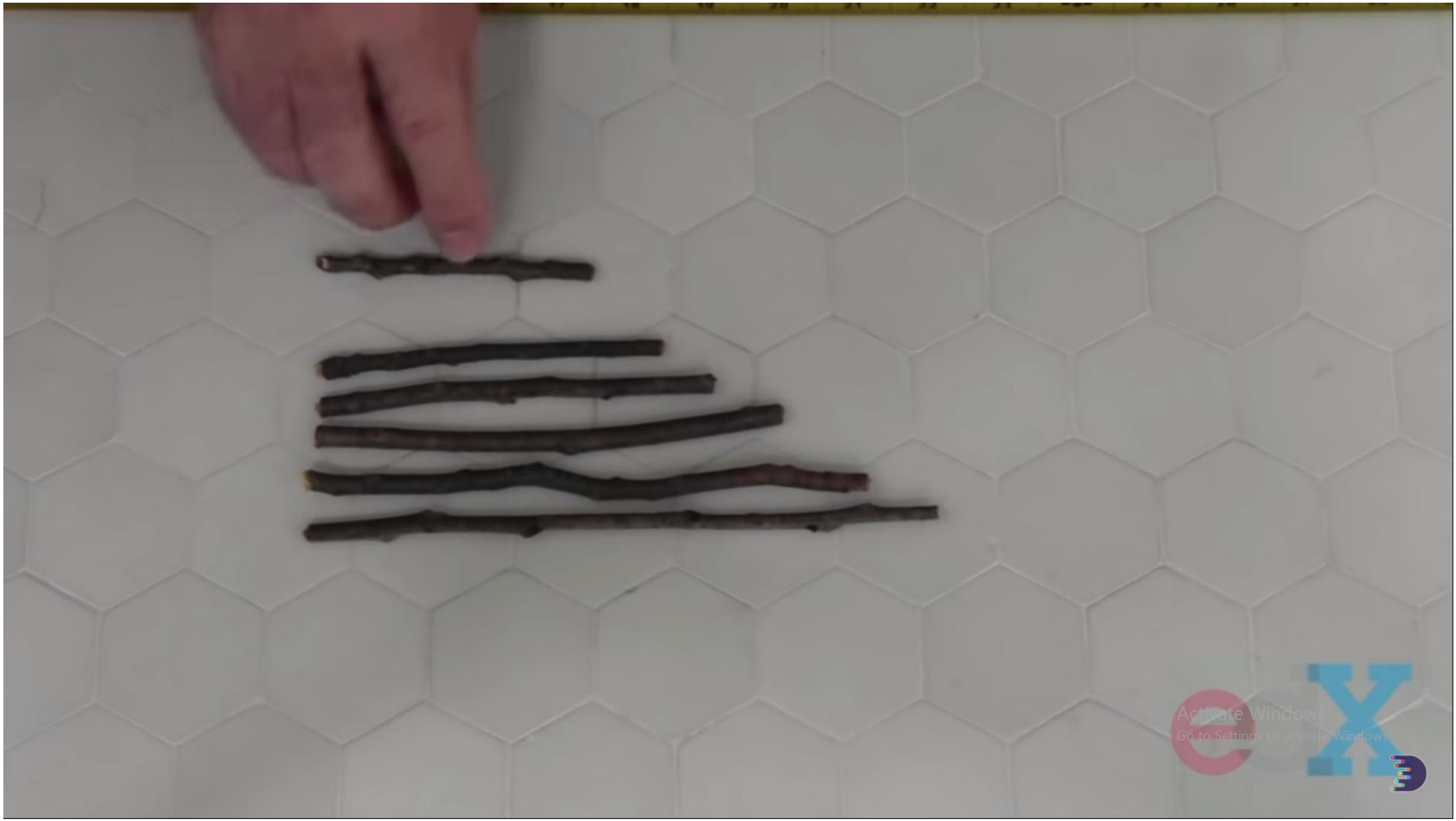
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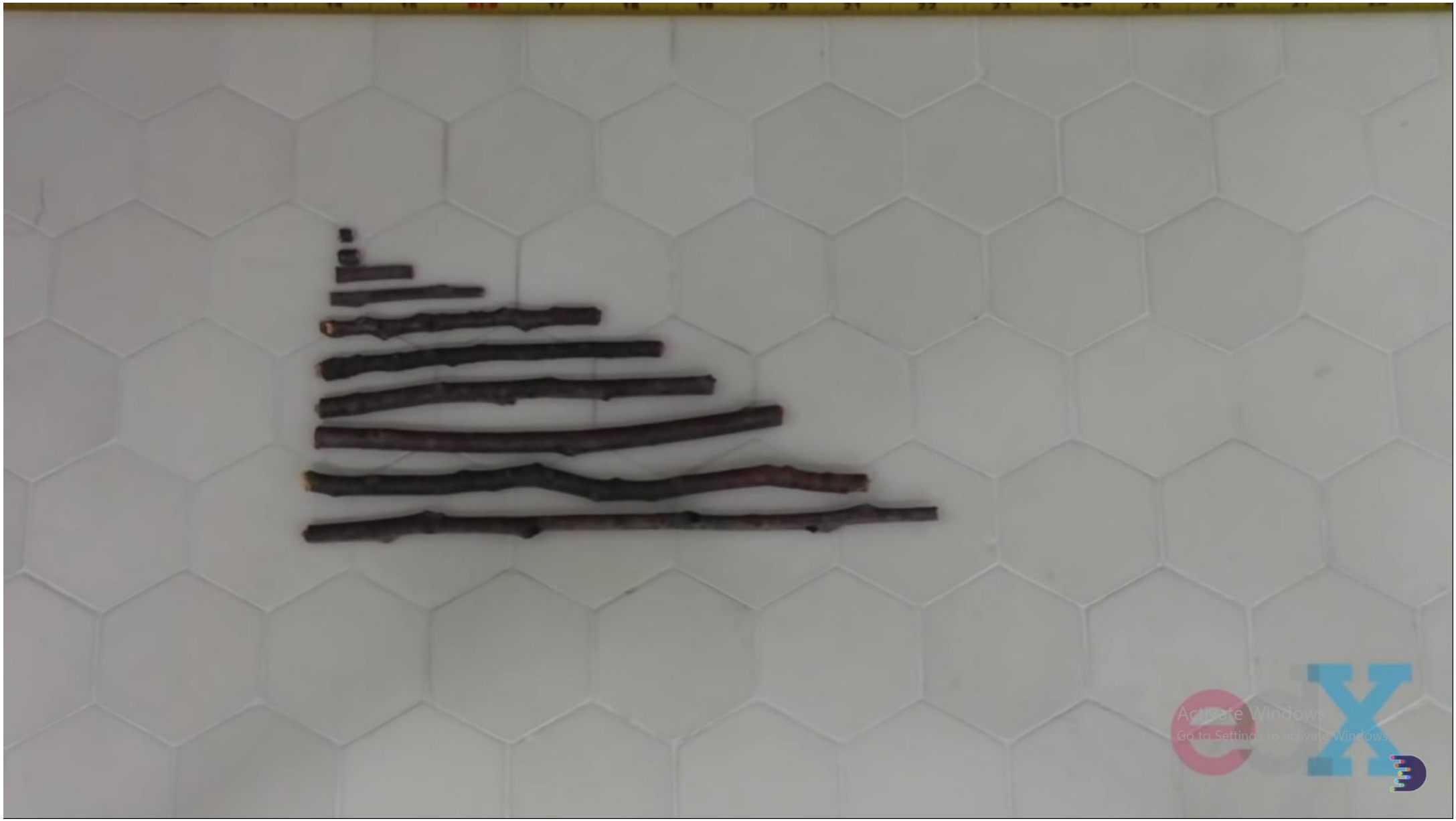
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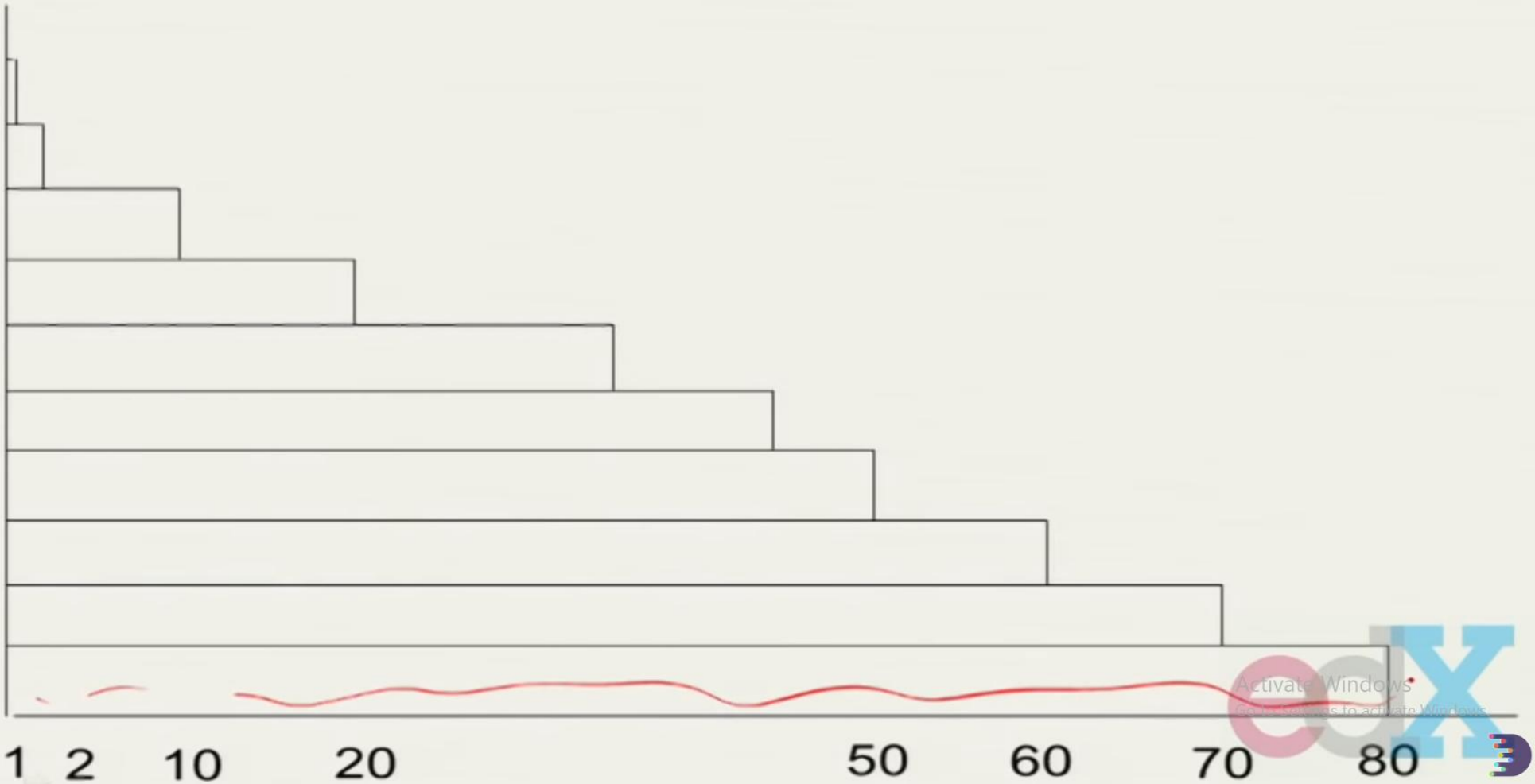
$$1 + 2 + 10 + 20 + 35 + 45 + 50 + 60 + 70 + 80 = 373$$



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Suppose we have a population of 10 people and we follow them till they die and here are their life spans:

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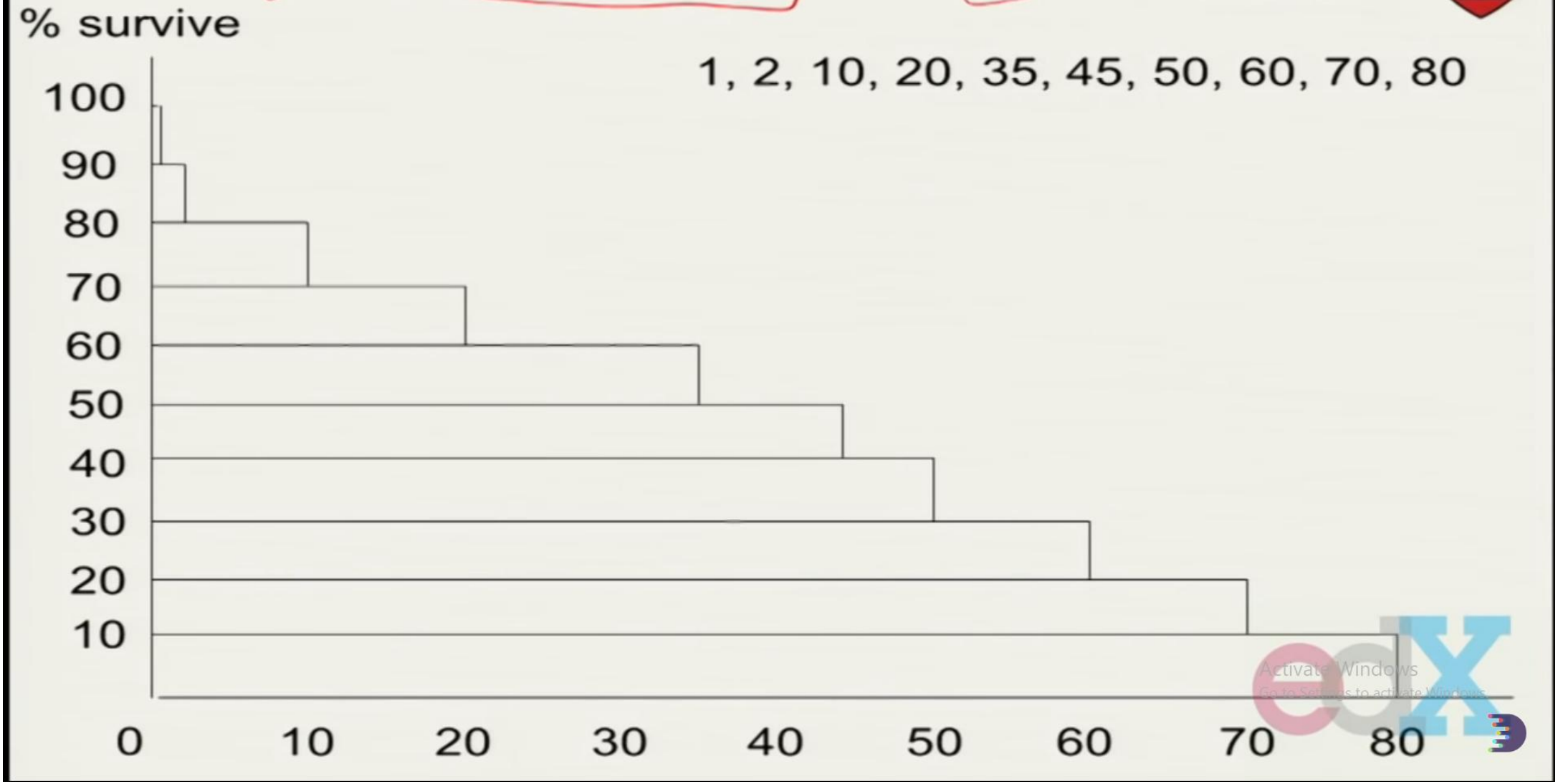
So the average life span is:

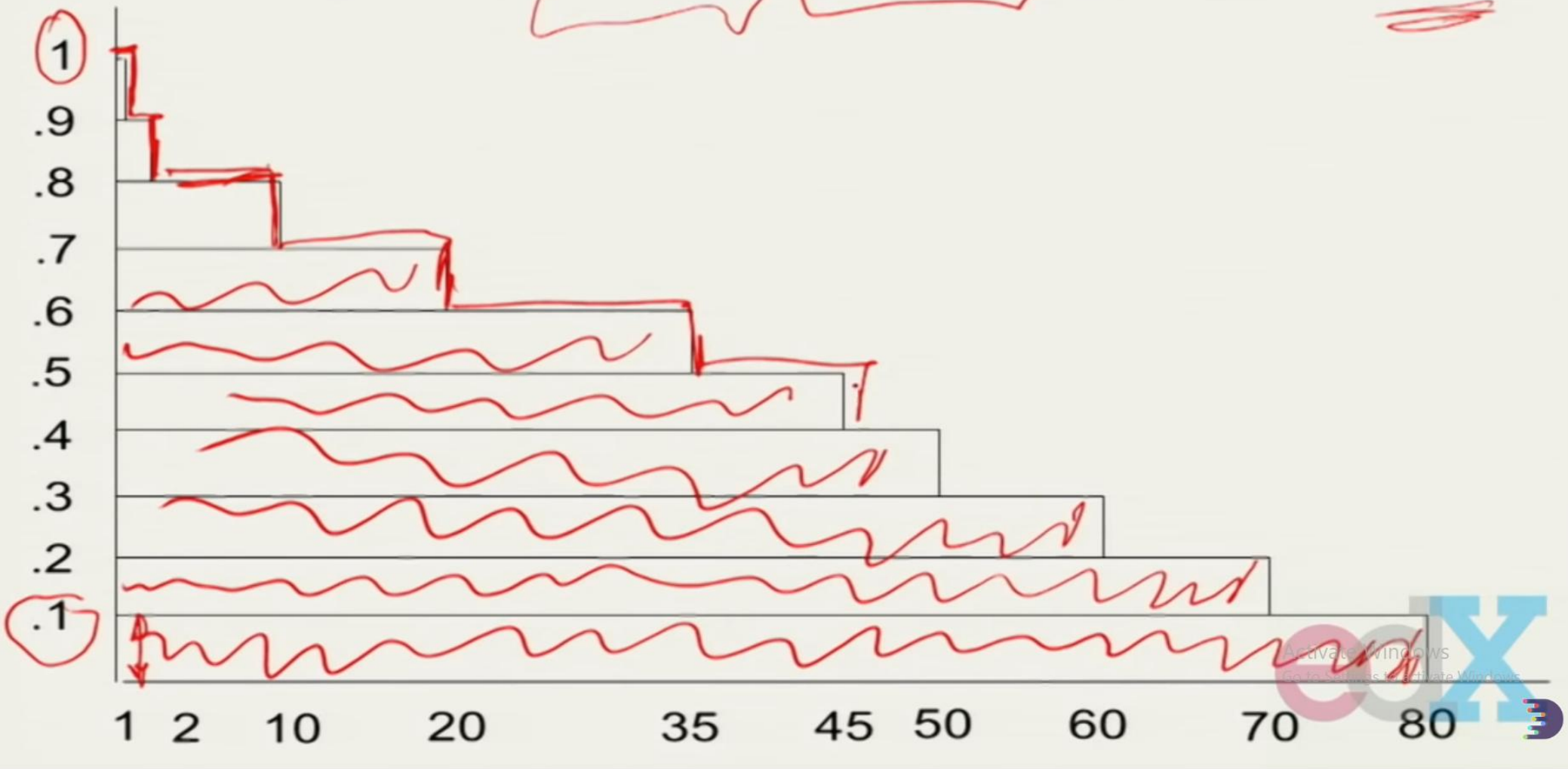
$$\frac{1+2+10+20+35+45+50+60+70+80}{10} = 37.3 =$$

$$(1\text{x}.1)+(2\text{x}.1)+(10\text{x}.1)+(20\text{x}.1)+(35\text{x}.1)+(45\text{x}.1)$$
$$+(50\text{x}.1)+(60\text{x}.1)+(70\text{x}.1)+(80\text{x}.1)$$

Survival Curve or Life Table



$$(1 \times .1) + (2 \times .1) + (10 \times .1) + (20 \times .1) + (35 \times .1) + (45 \times .1) +$$
$$(50 \times .1) + (60 \times .1) + (70 \times .1) + (80 \times .1) = 373 \times .1 = 37.3$$



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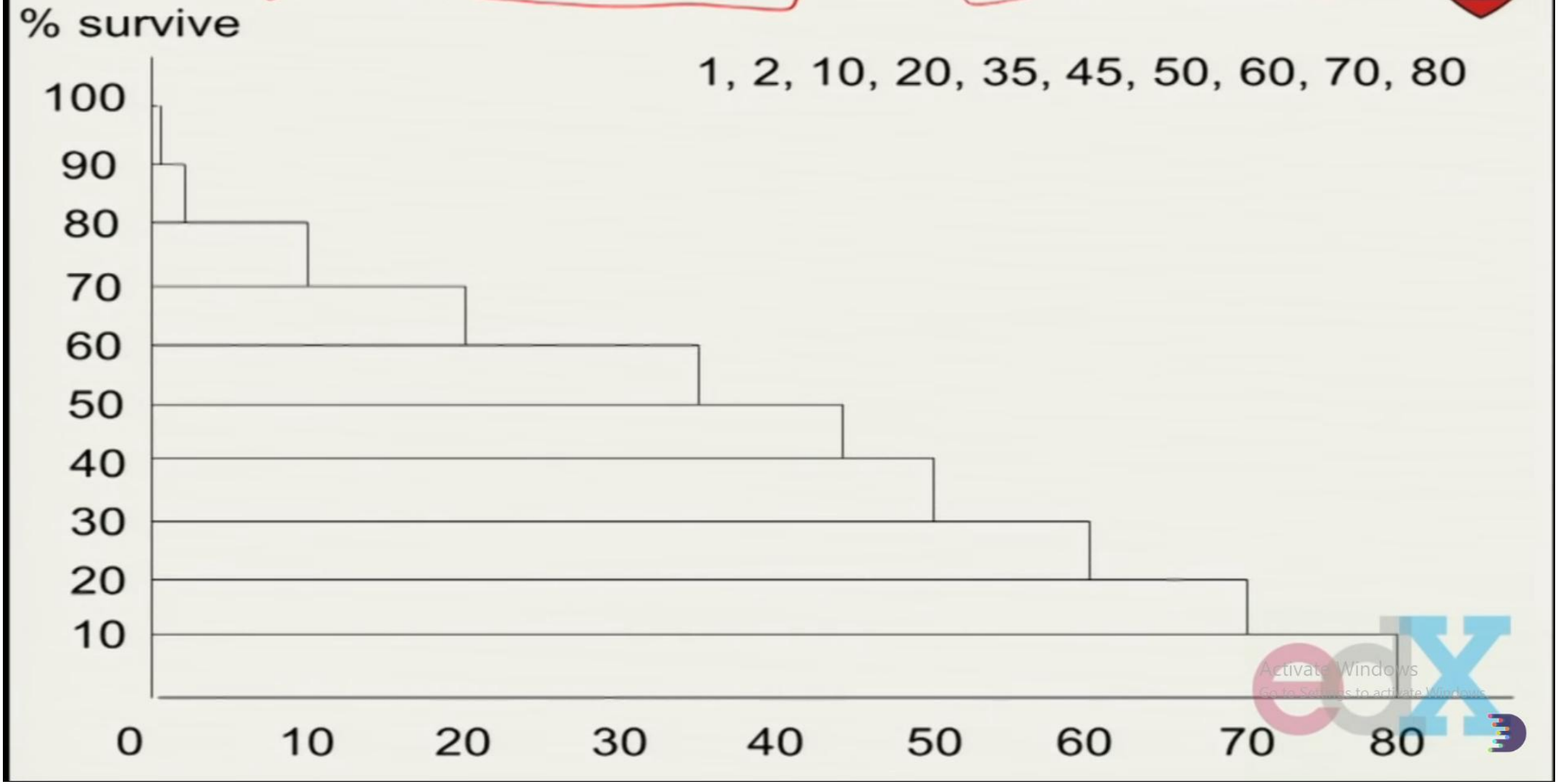

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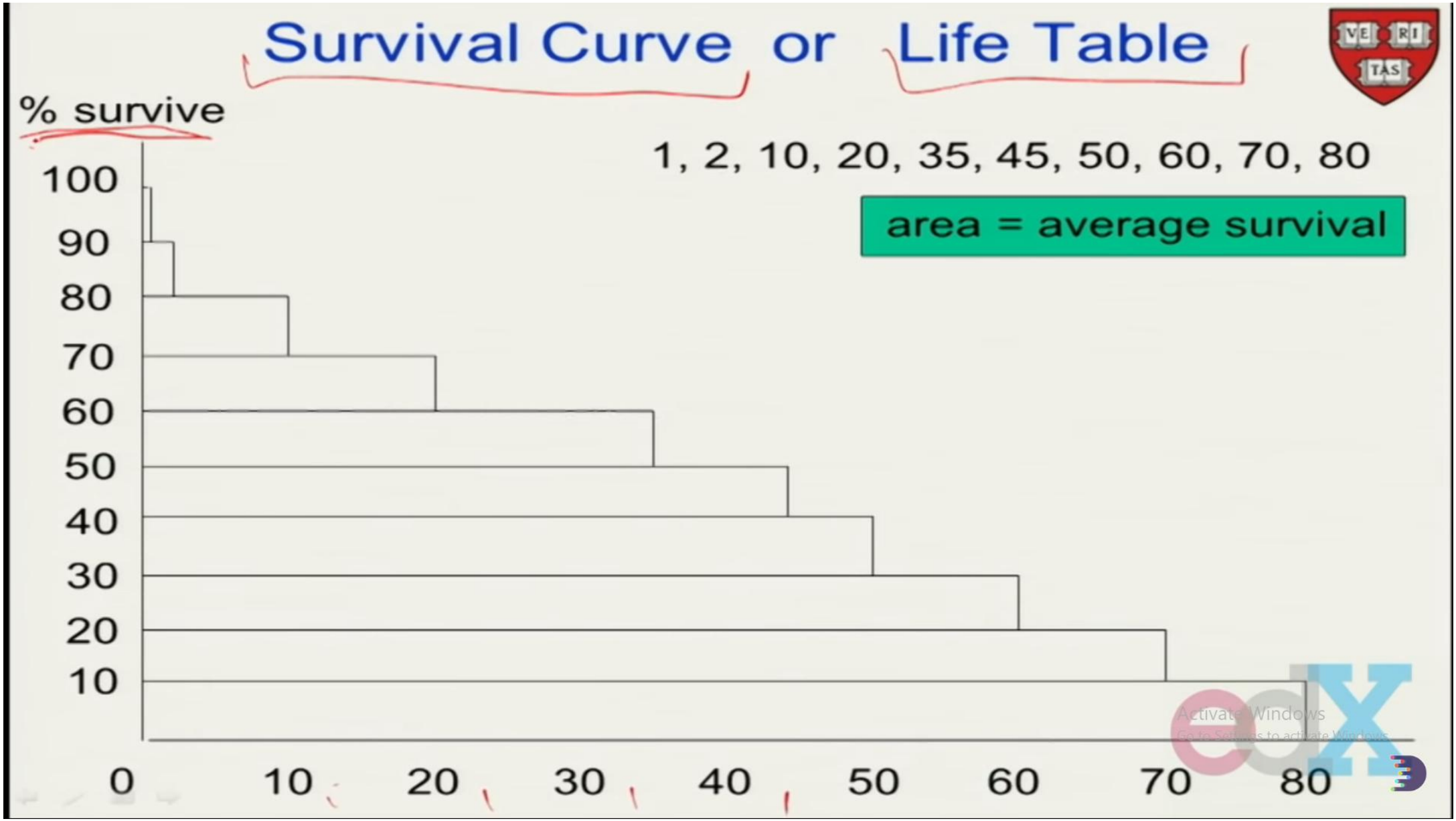

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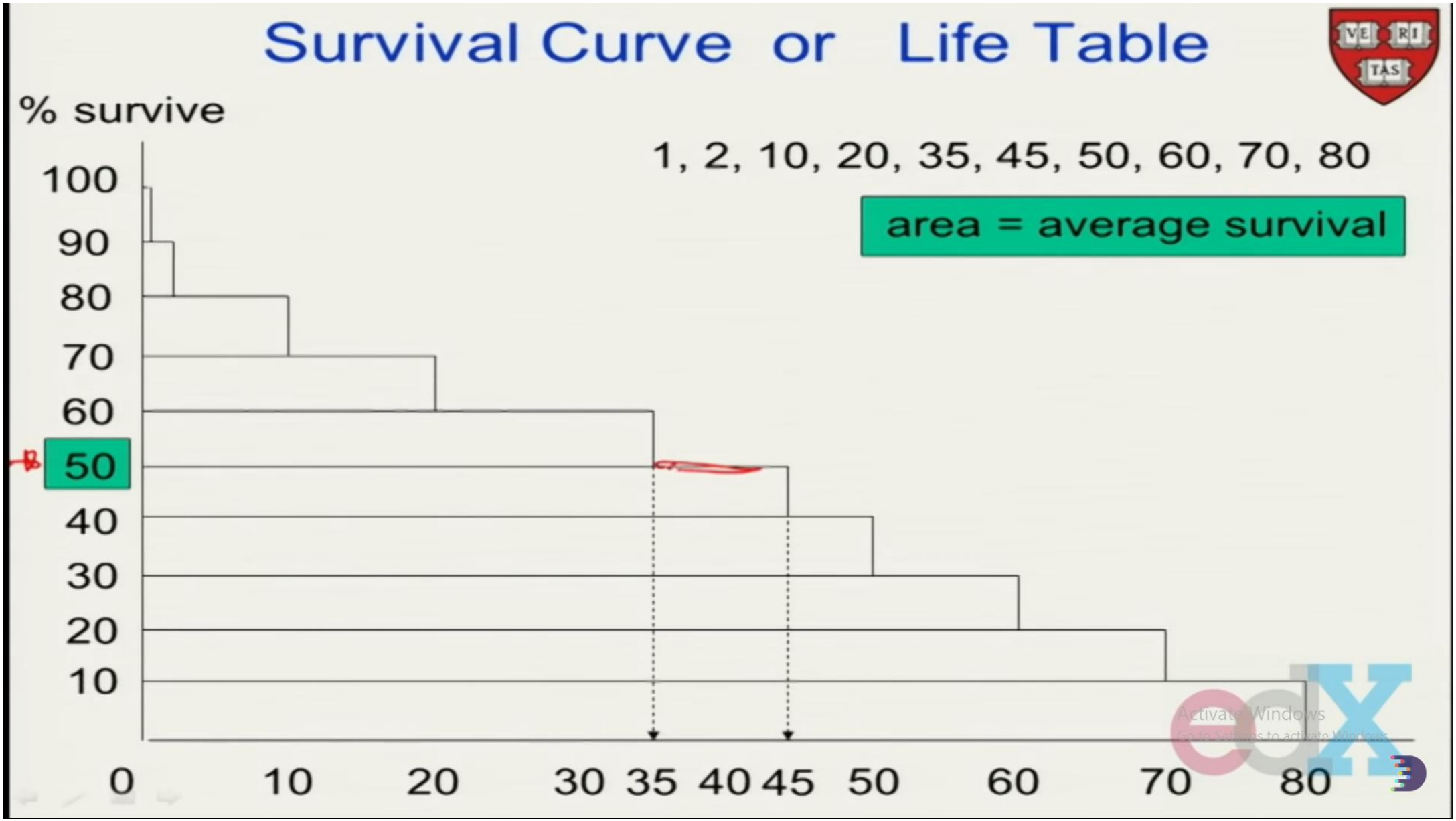

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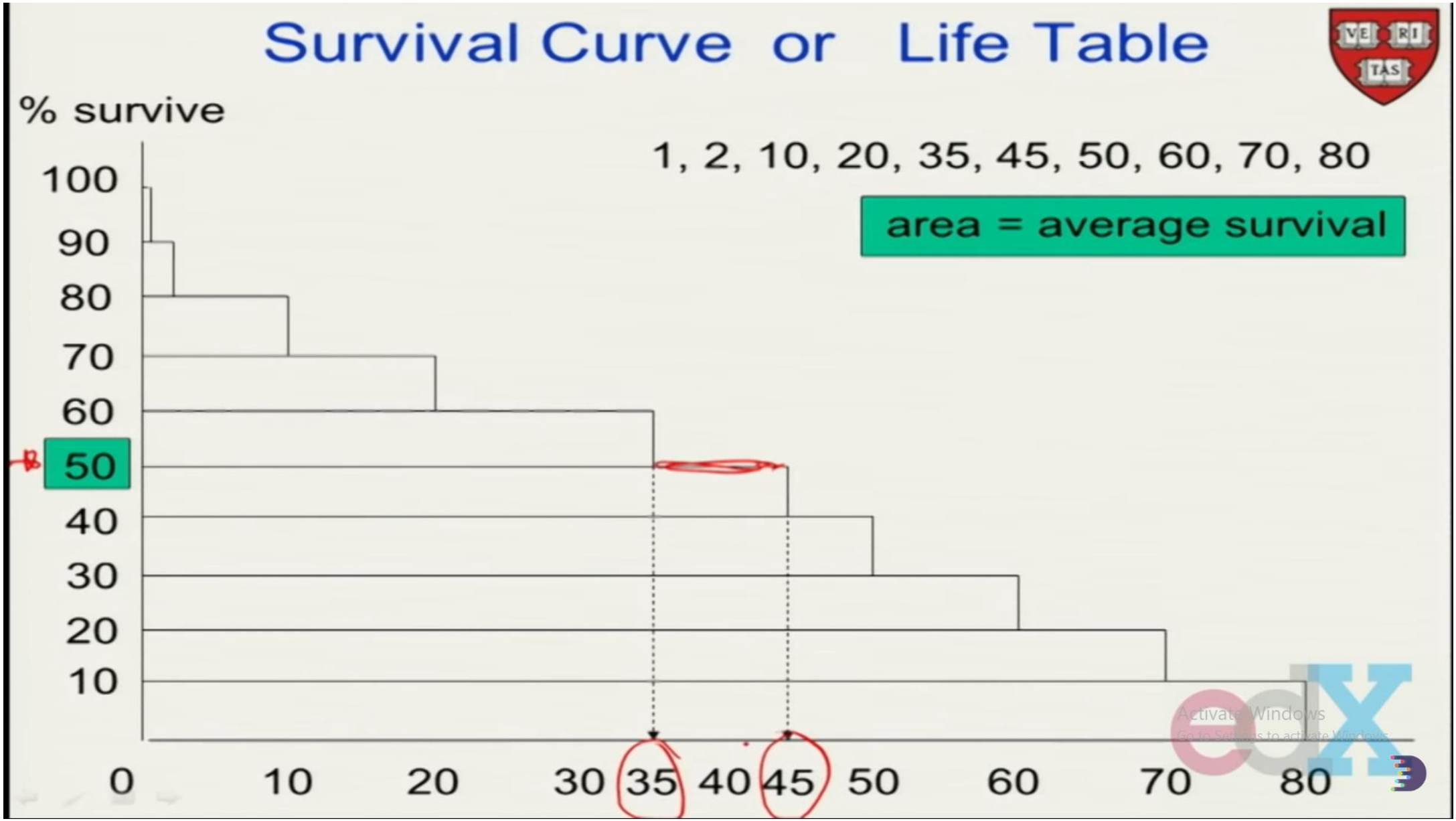
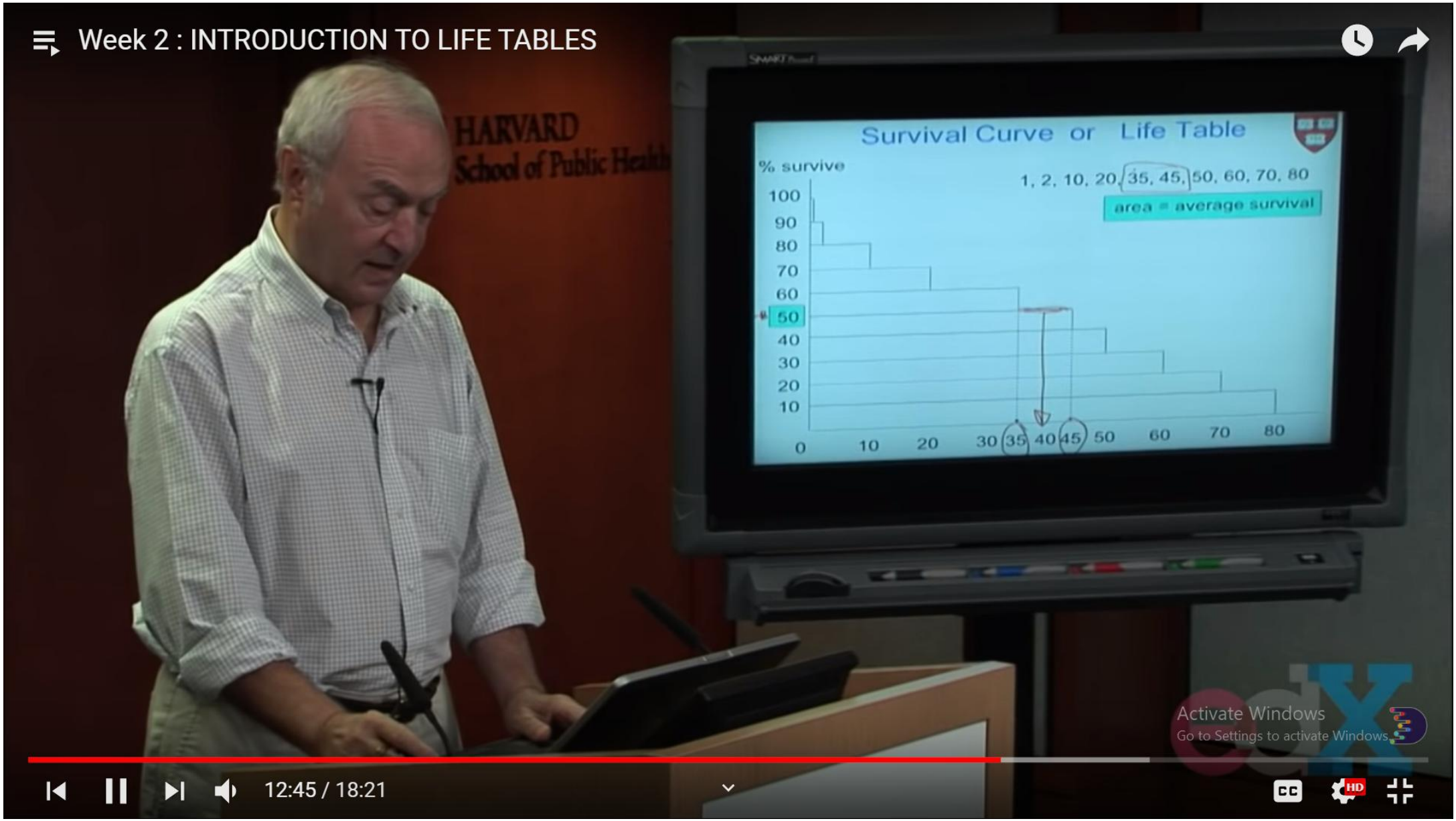
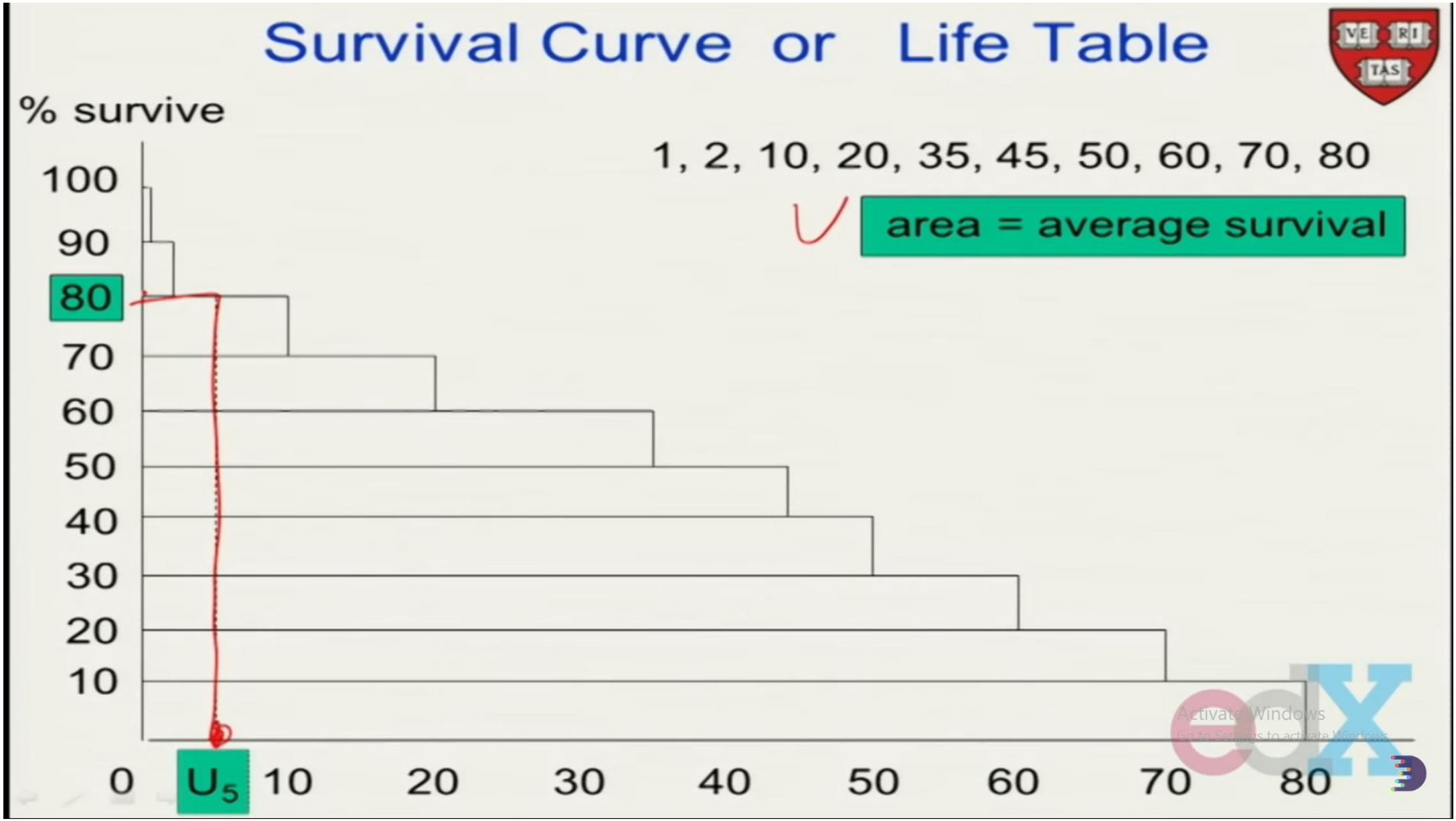
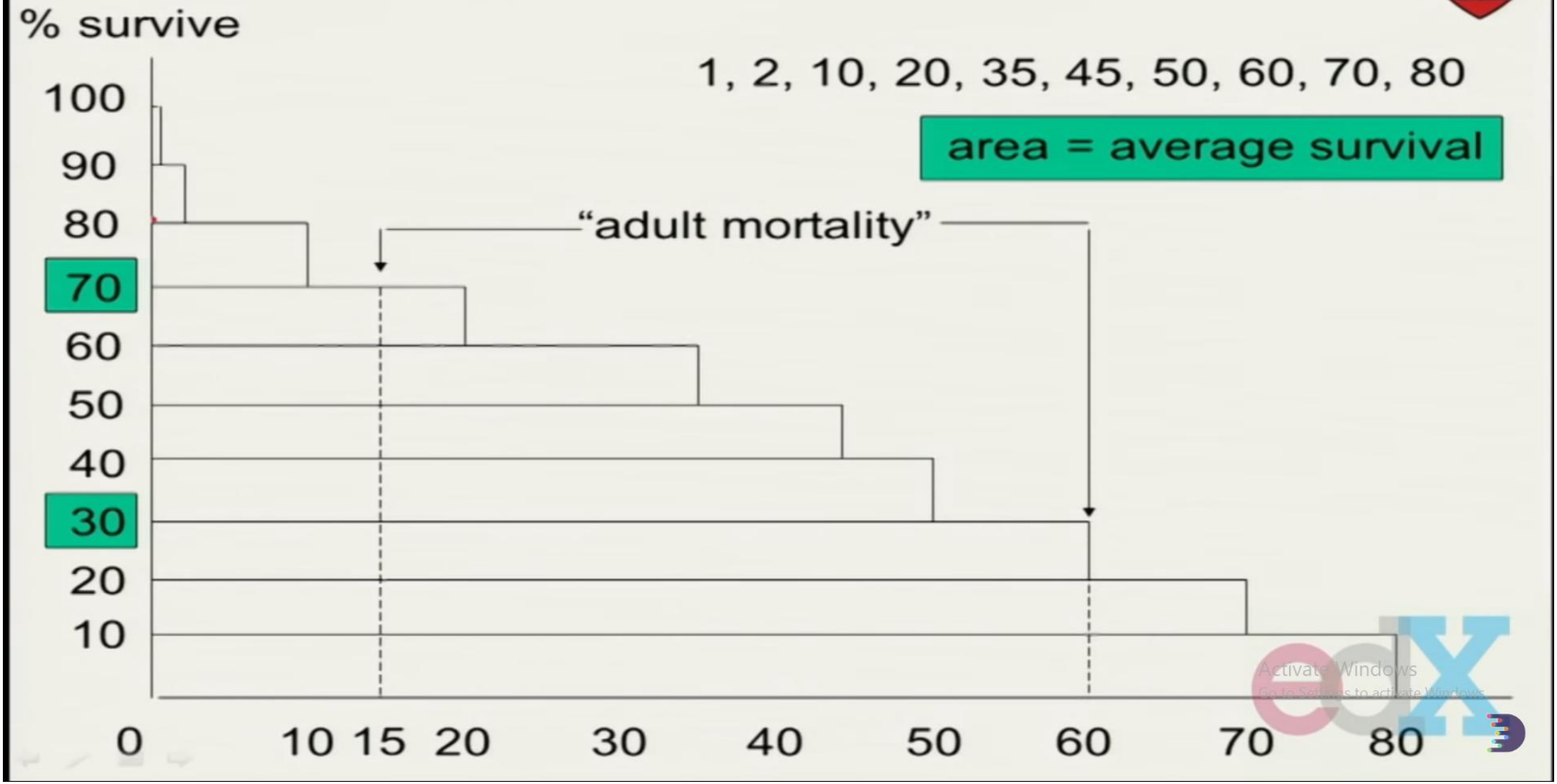



Week 2 : INTRODUCTION TO LIFE TABLES
HARVARD
School of Public Health
Survival Curve or Life Table
% survive
1, 2, 10, 20, 35, 45, 50, 60, 70, 80
area = average survival
100
90
80
70
60
50
40
30
20
10
0
10
20
30
35
40
45
50
60
70
80
12:45 / 18:21
Activate Windows
Go to Settings to activate Windows.

Survival Curve or Life Table



Survival Curve or Life Table



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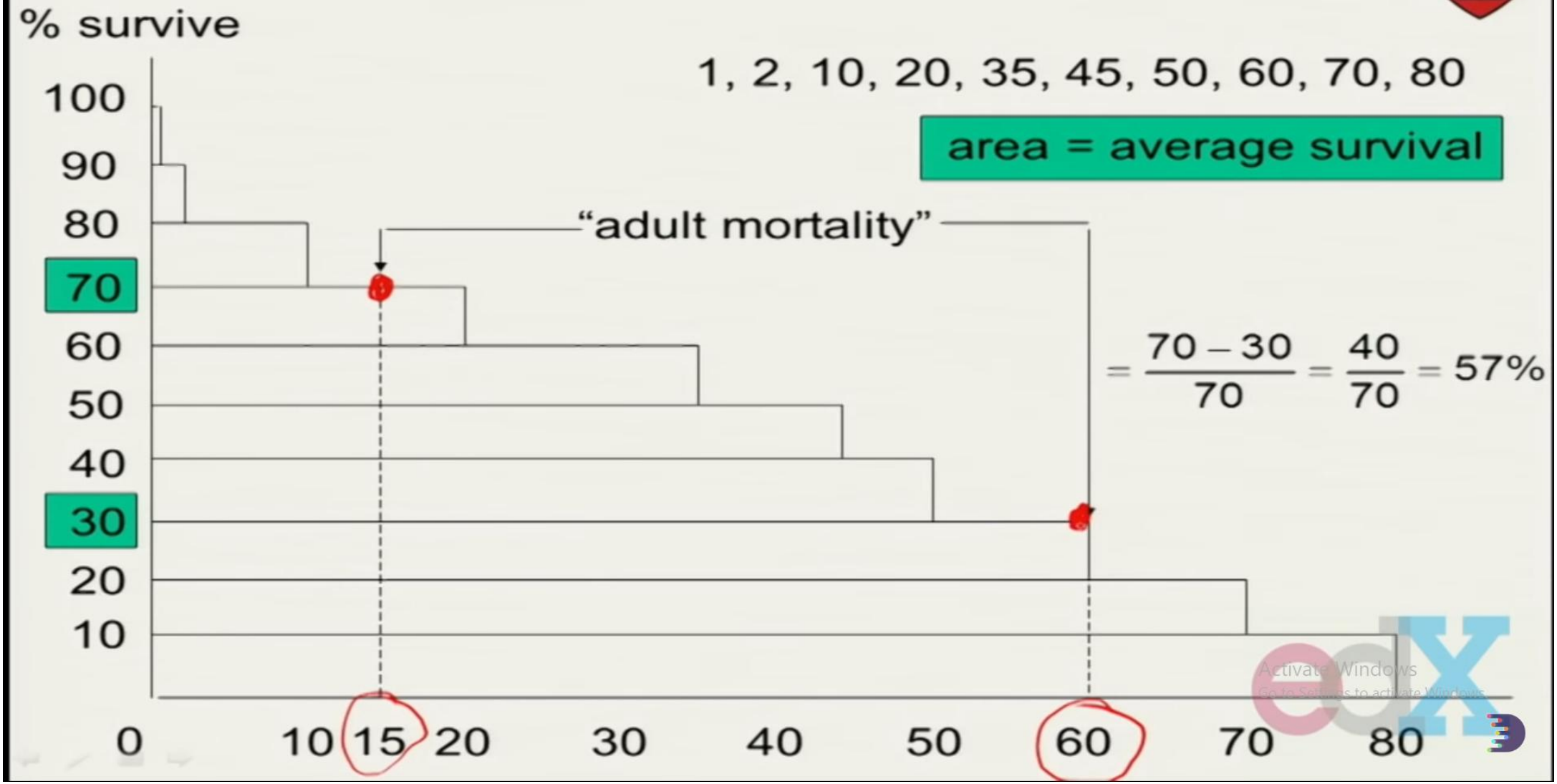

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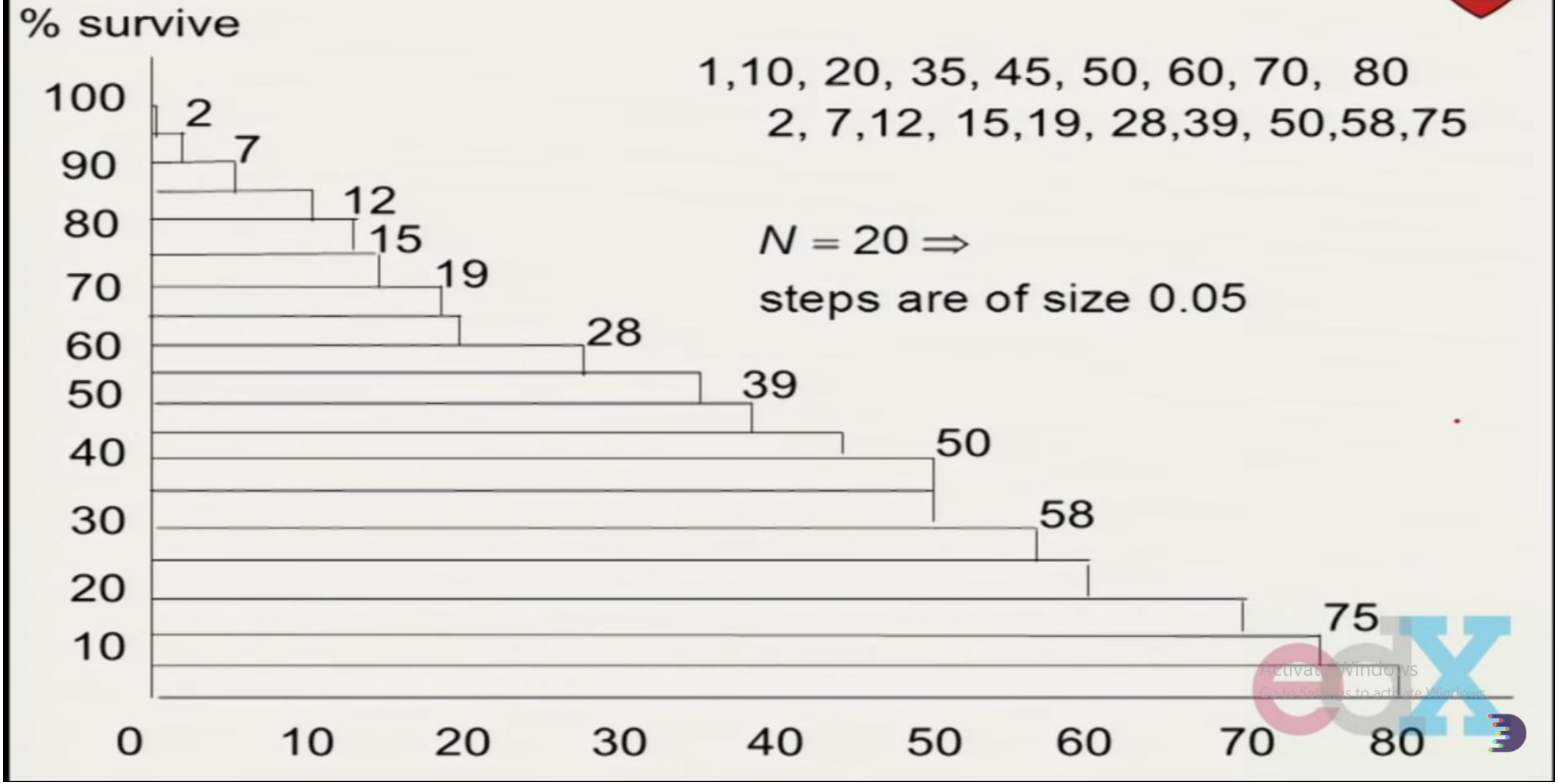

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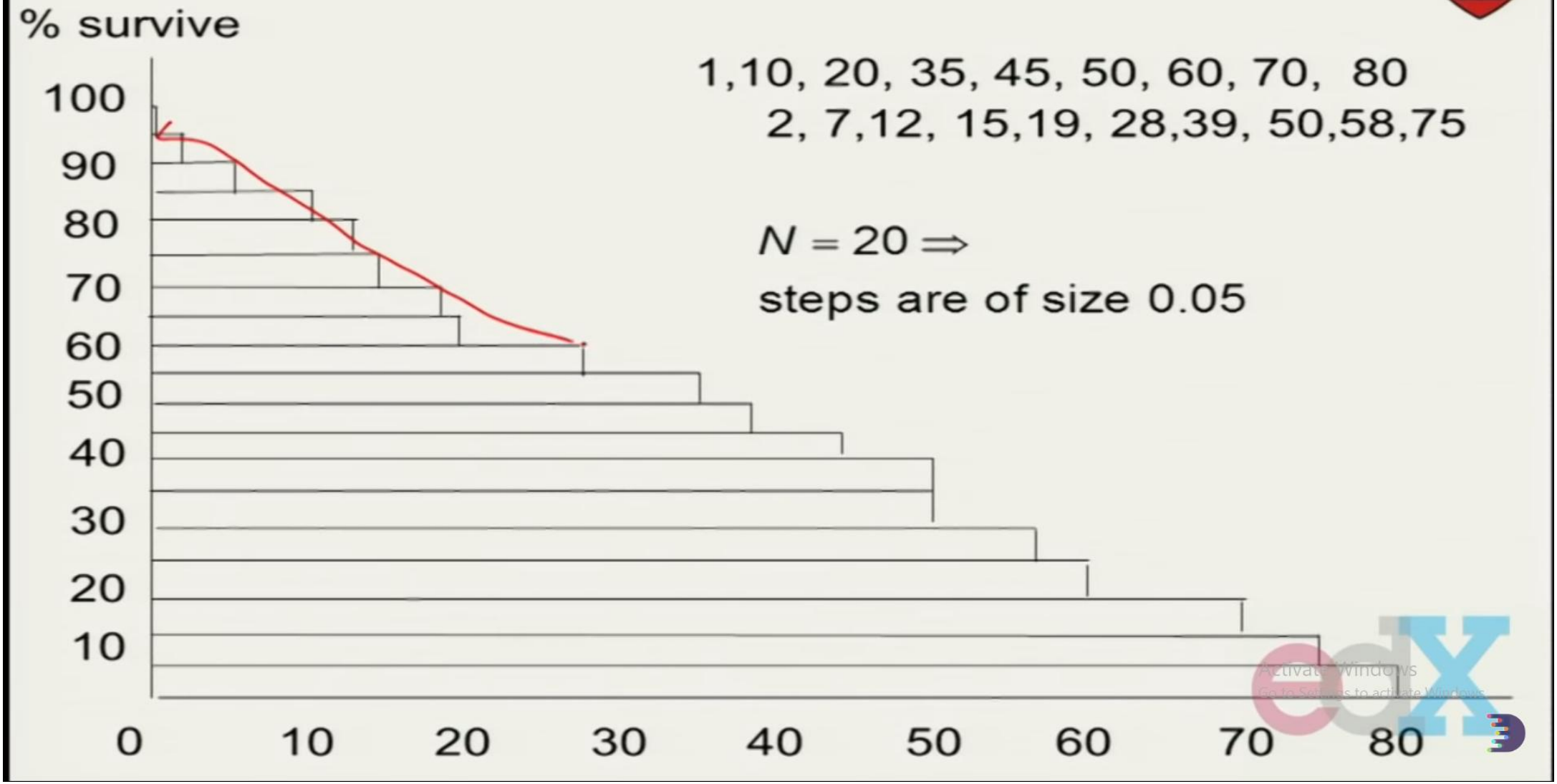

So as the group size gets bigger the steps get smaller and smaller, eventually leading to a “smooth” curve.

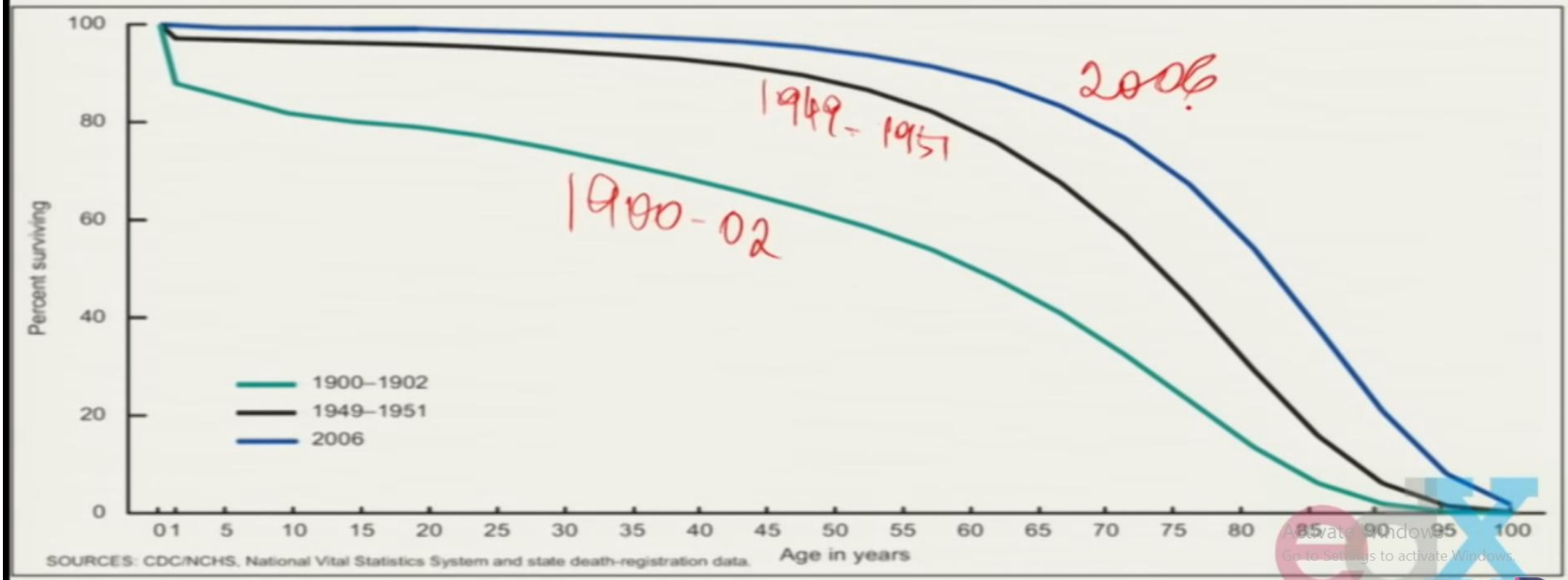

Figure 3. Percentage surviving, by age: Death-registration states, 1900–1902, and United States, 1949–1951 and 2006

Week 2 : INTRODUCTION TO LIFE TABLES

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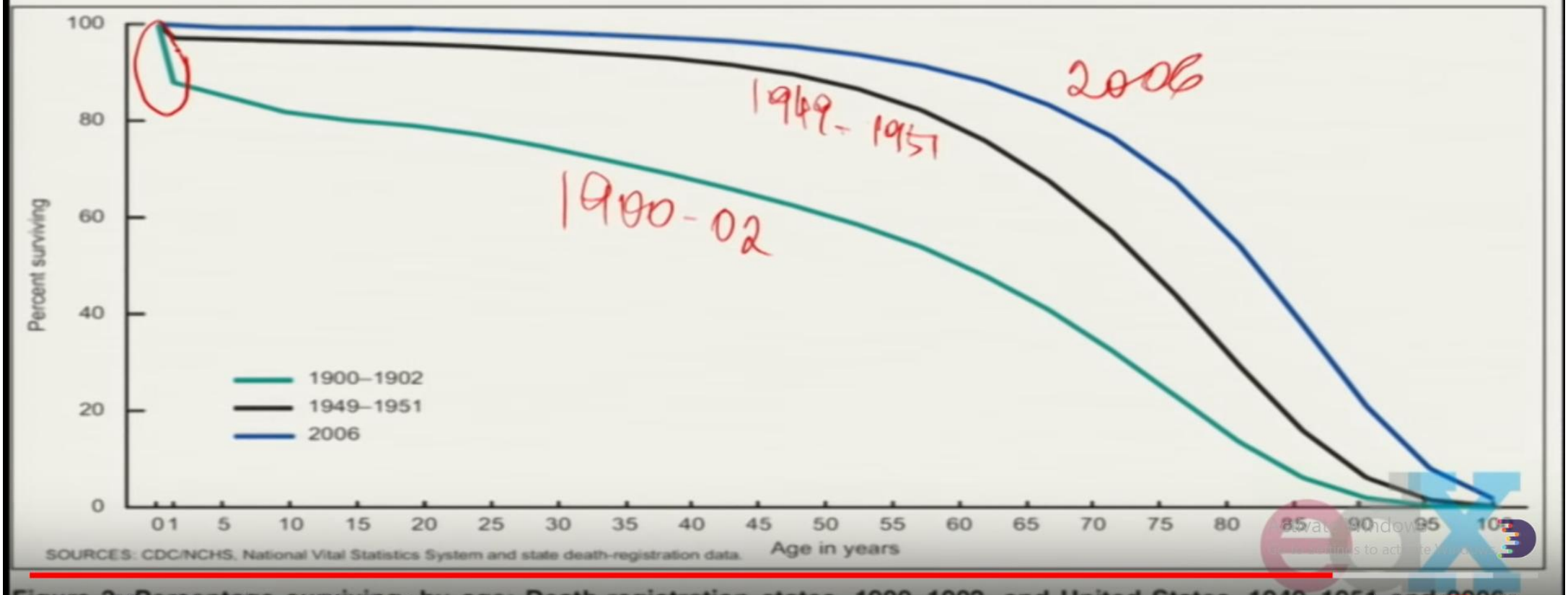

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15:51 / 18:21

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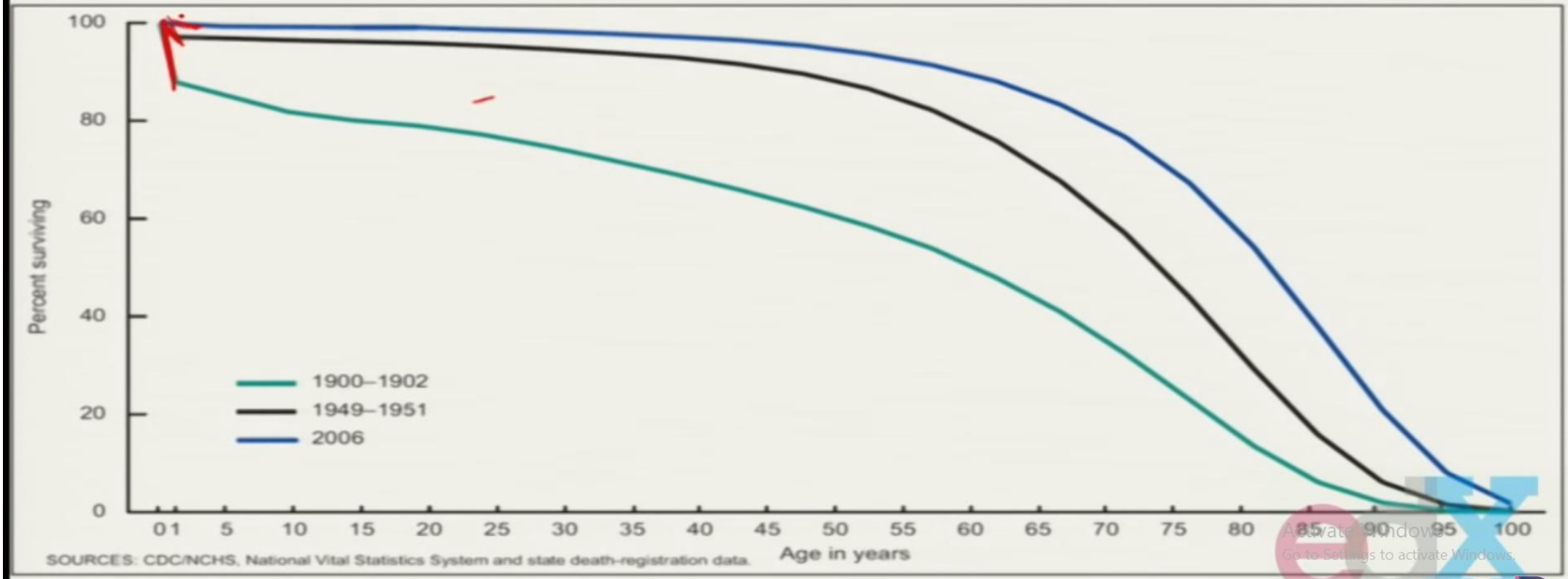

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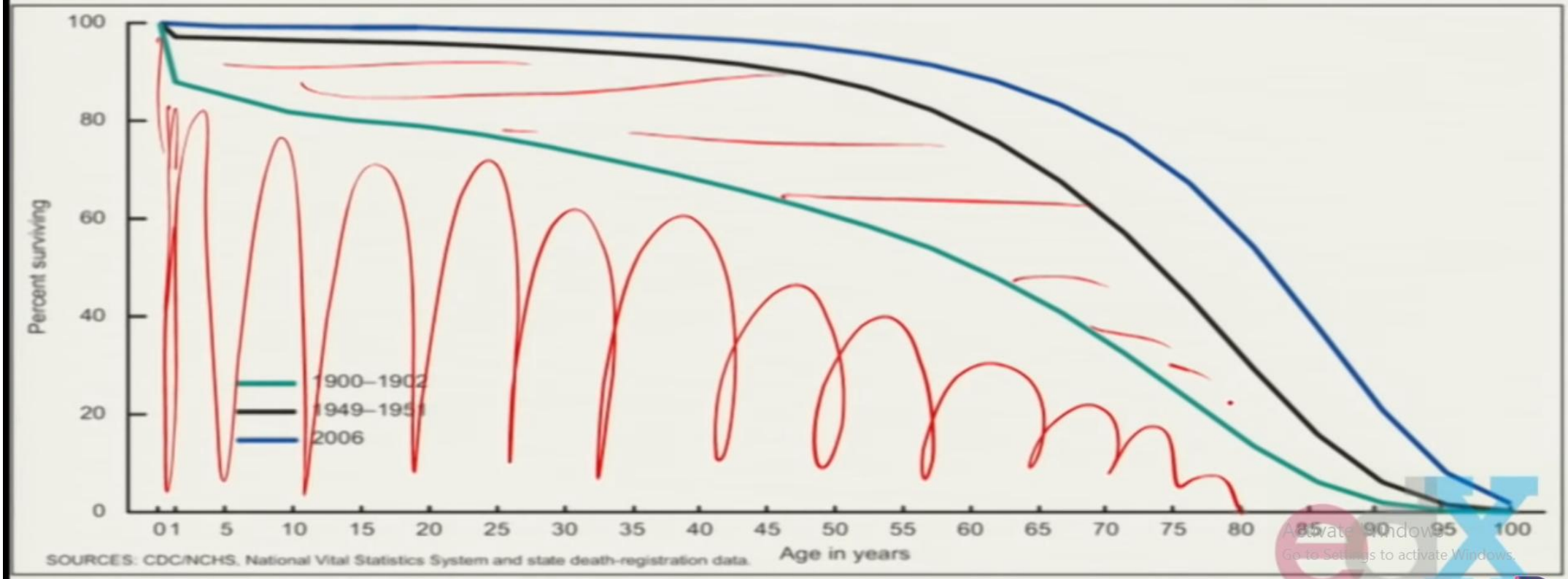

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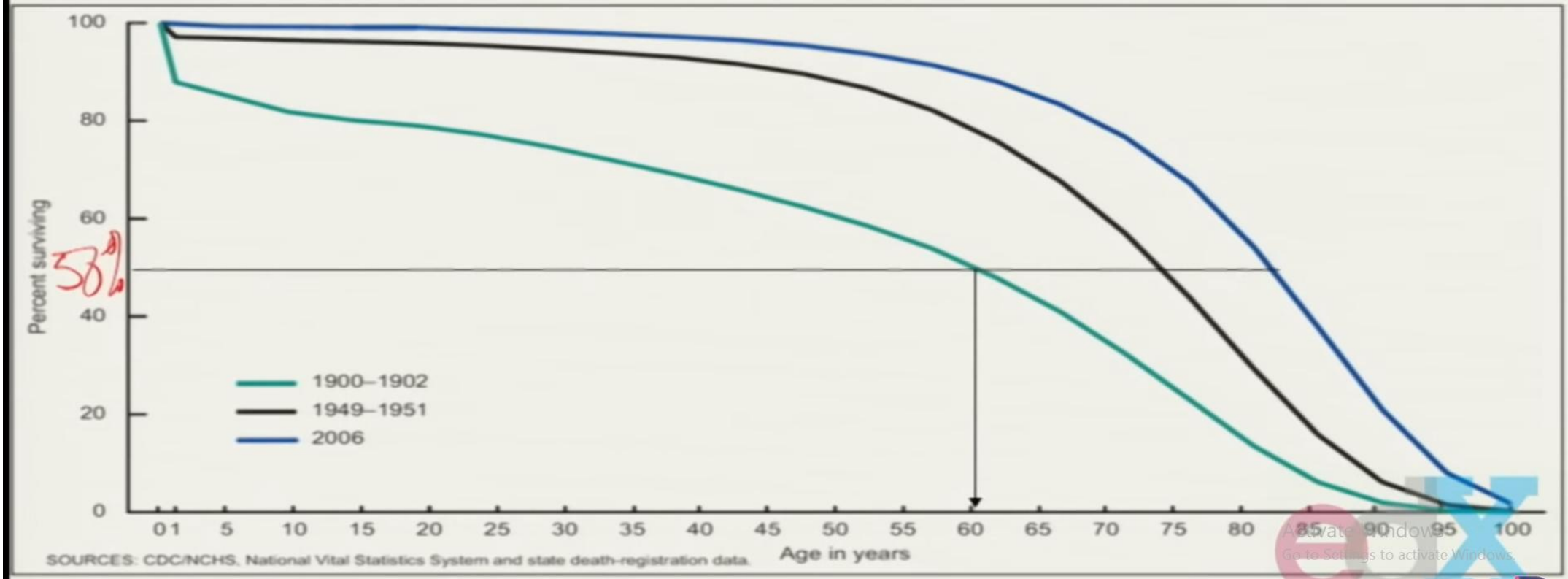

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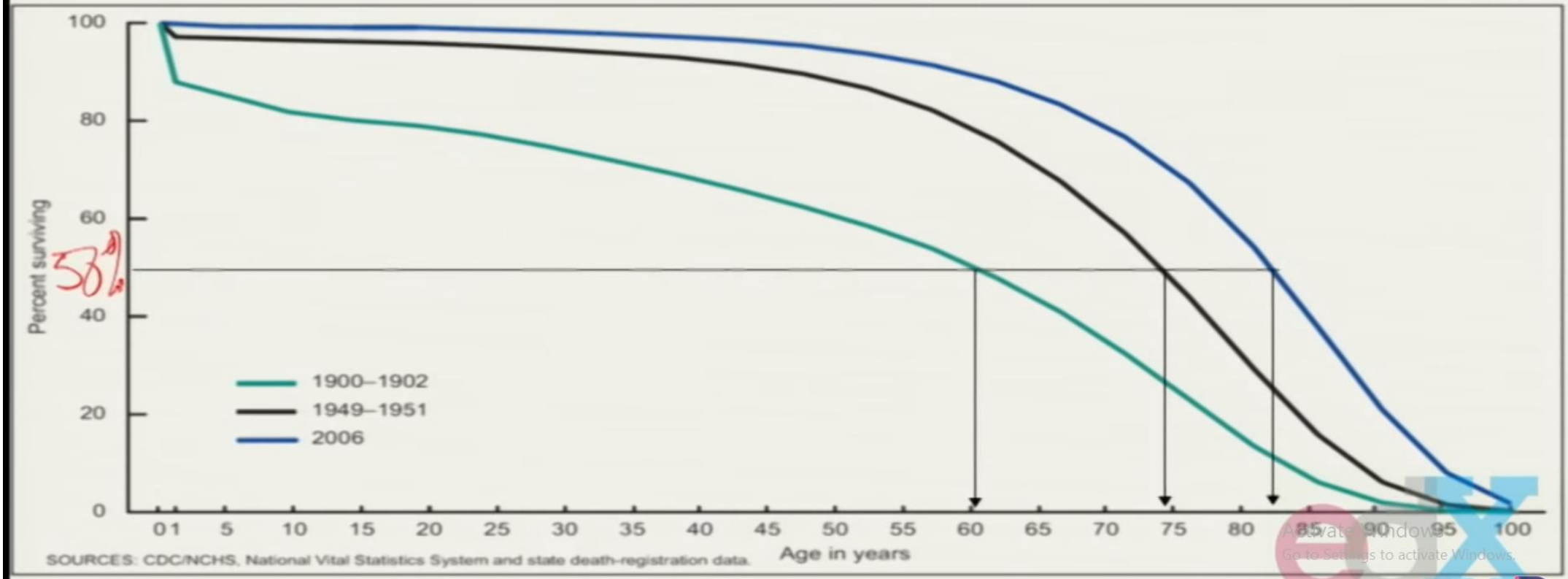

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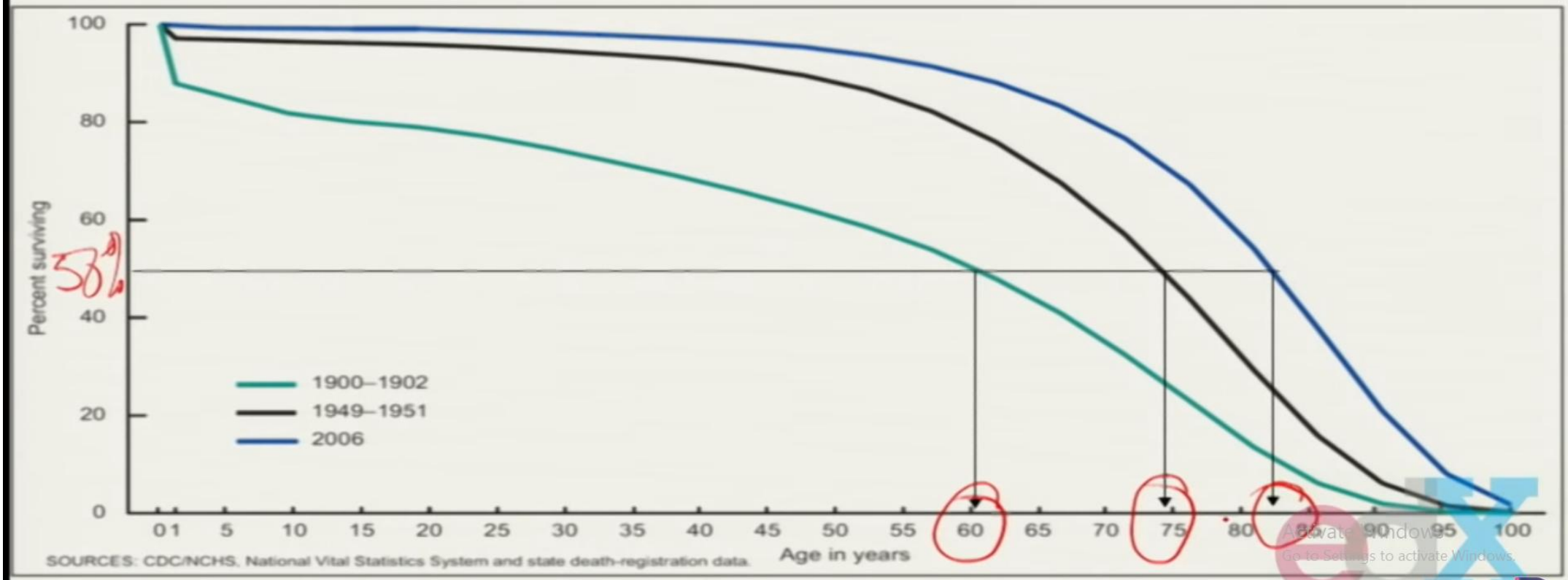

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Week 2 : INTRODUCTION TO LIFE TABLES

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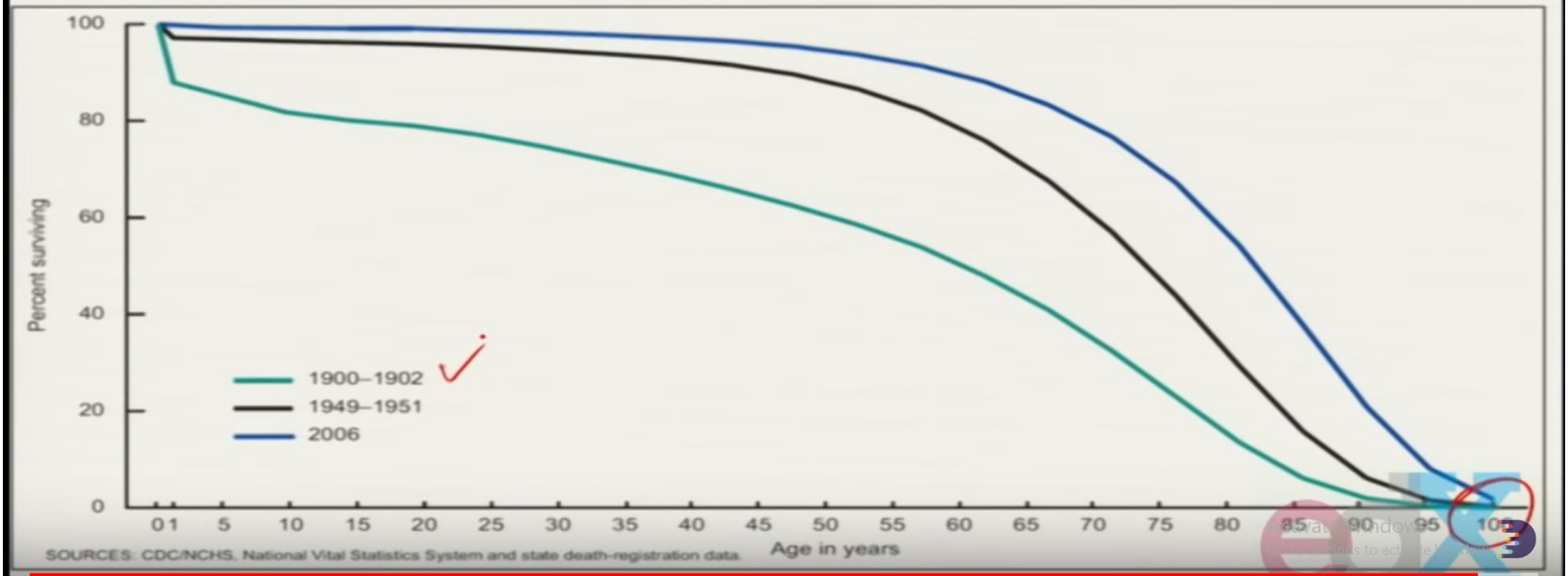
How are these curves constructed? Did we wait 100 years?



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17:37 / 18:21

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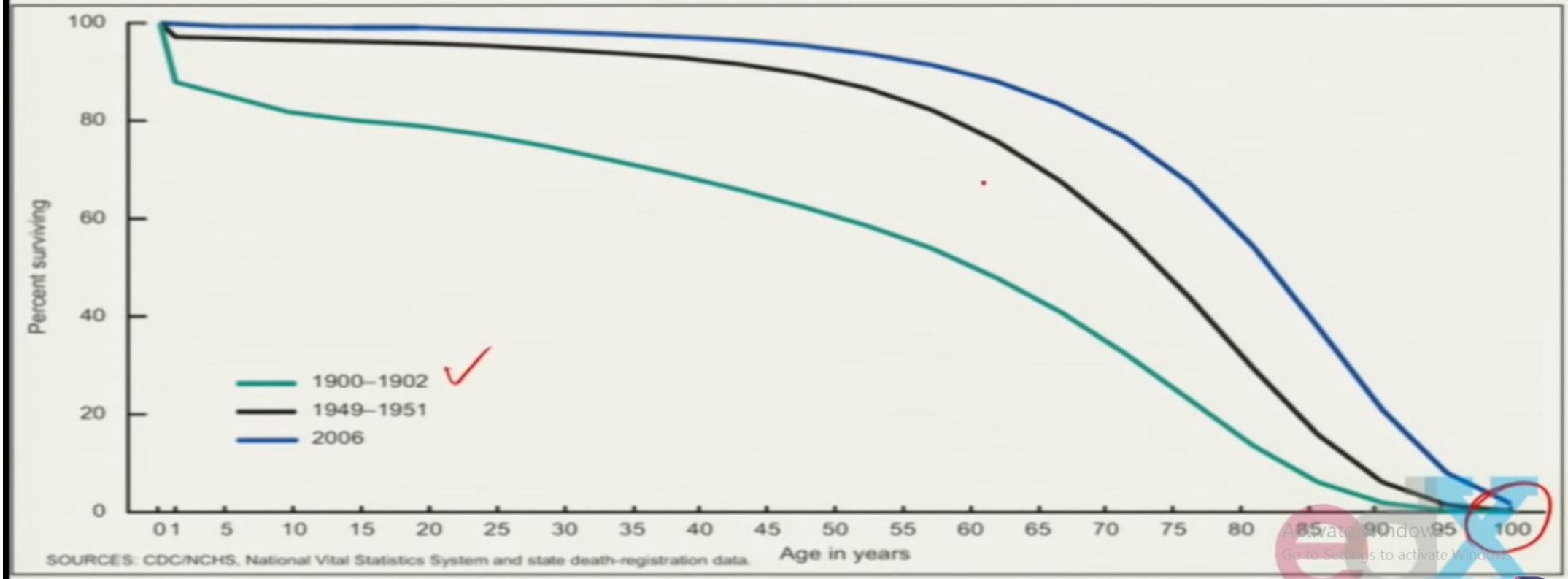

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