

Digesting the Indigestible

Improving the use and visualisation of data



Too much data

Data-driven
KPIs and
targets

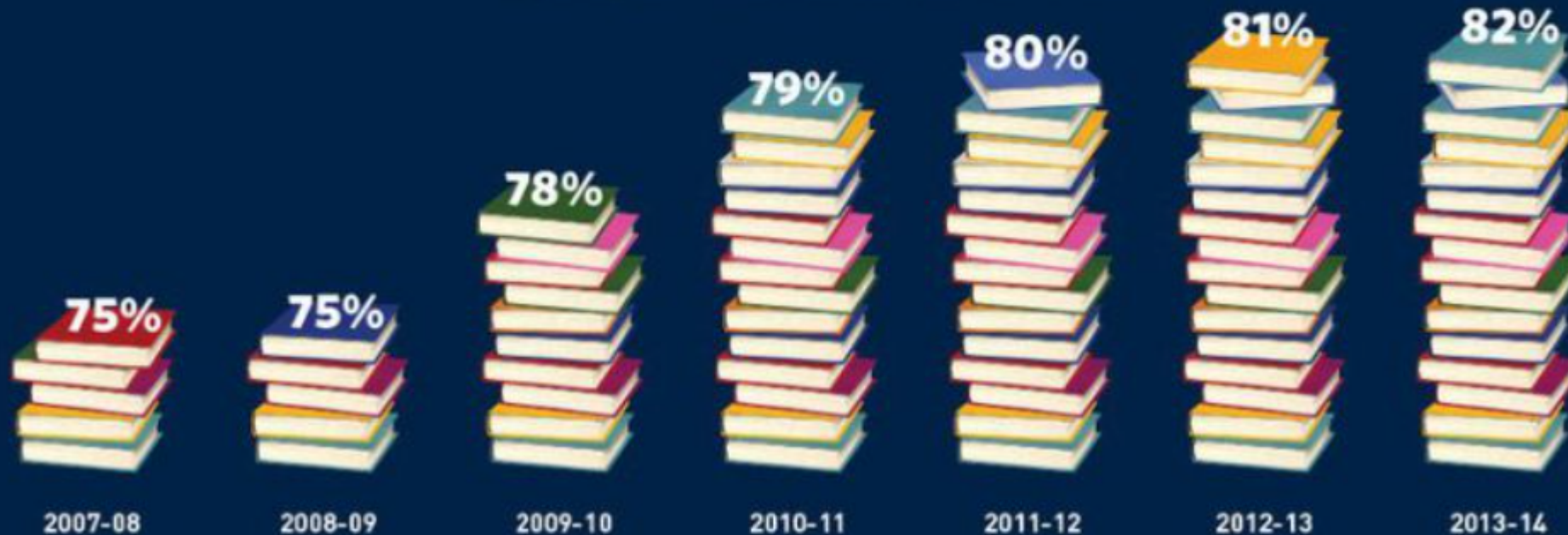
Understandable
data

The
mathematician's
role?

How do non-
numerate people
use data?

UNDER PRESIDENT OBAMA,
MORE STUDENTS ARE EARNING THEIR HIGH SCHOOL DIPLOMAS THAN EVER BEFORE

HIGH SCHOOL GRADUATION RATE



#LeadOnEducation

SOURCE: U.S. DEPARTMENT OF EDUCATION,
NATIONAL CENTER FOR EDUCATION STATISTICS

High school graduation rates in the US

90%

75

60

45

30

15

0

'09

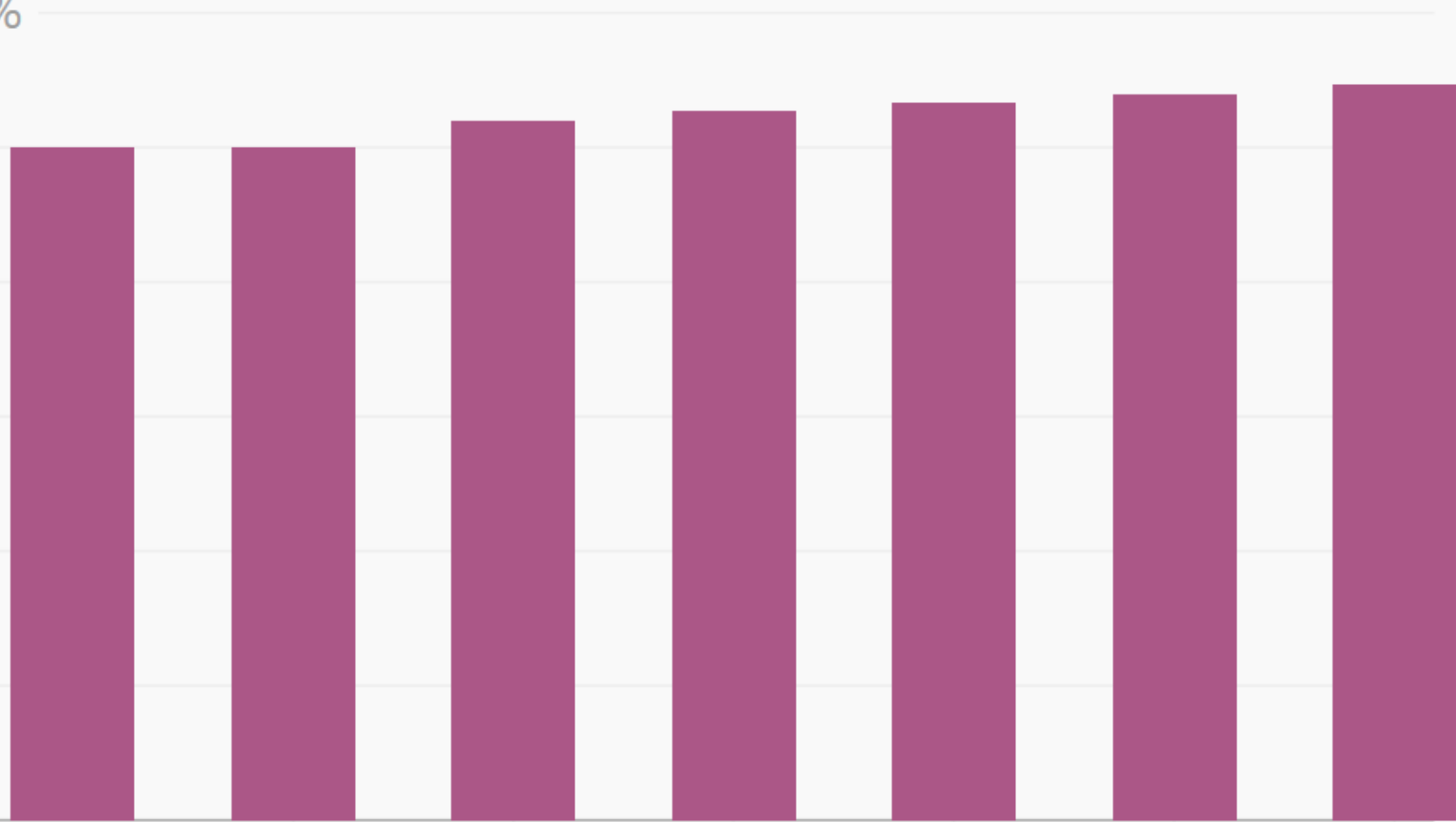
'10

'11

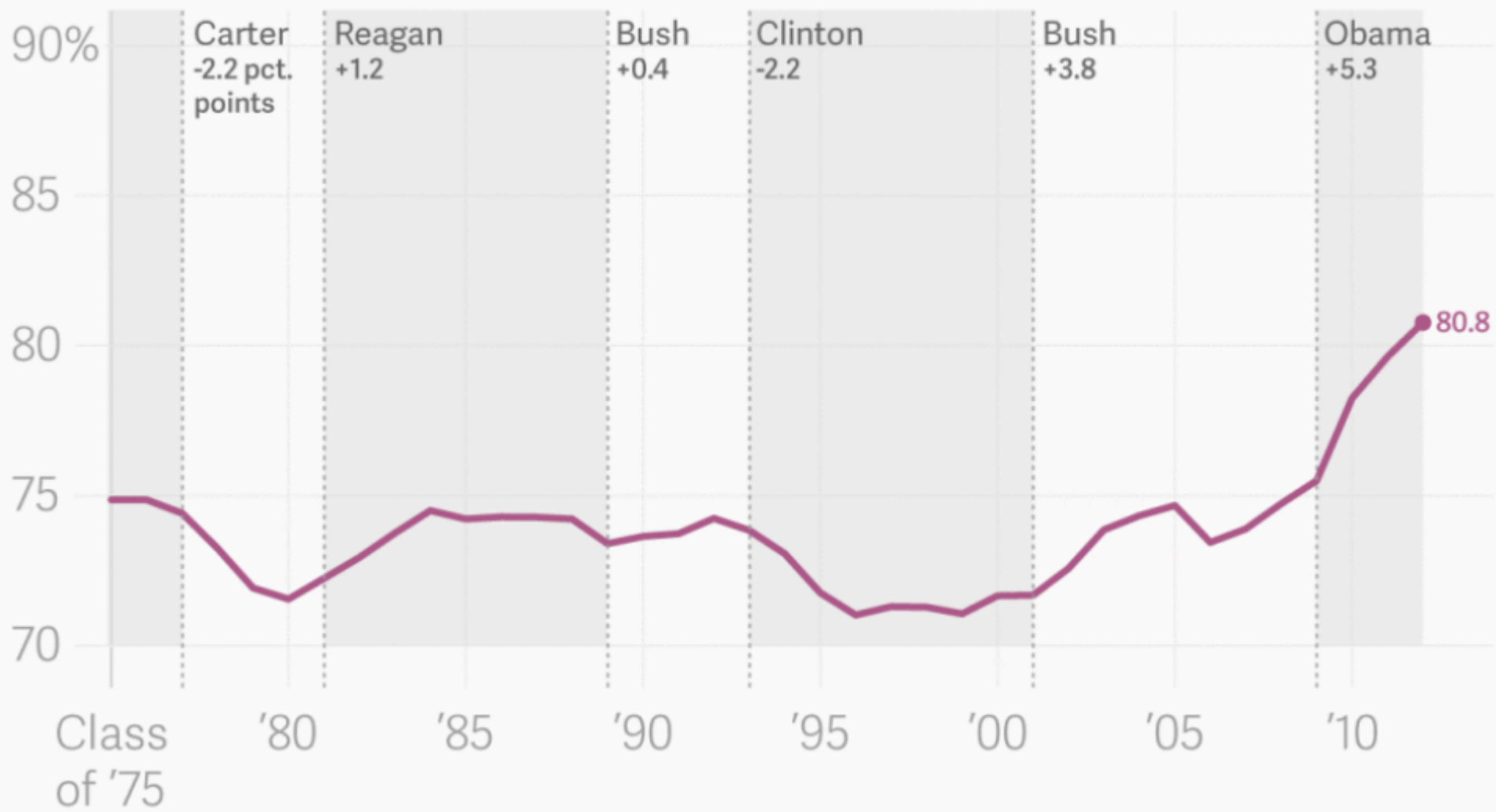
'12

'13

'14



High school graduation rates in the US, 1975 to 2012



Average Annual Global Temperature in Fahrenheit
1880-2015



Average global temperature, 1880 to 2014

60° fahrenheit

59

58

57

56

55

1900

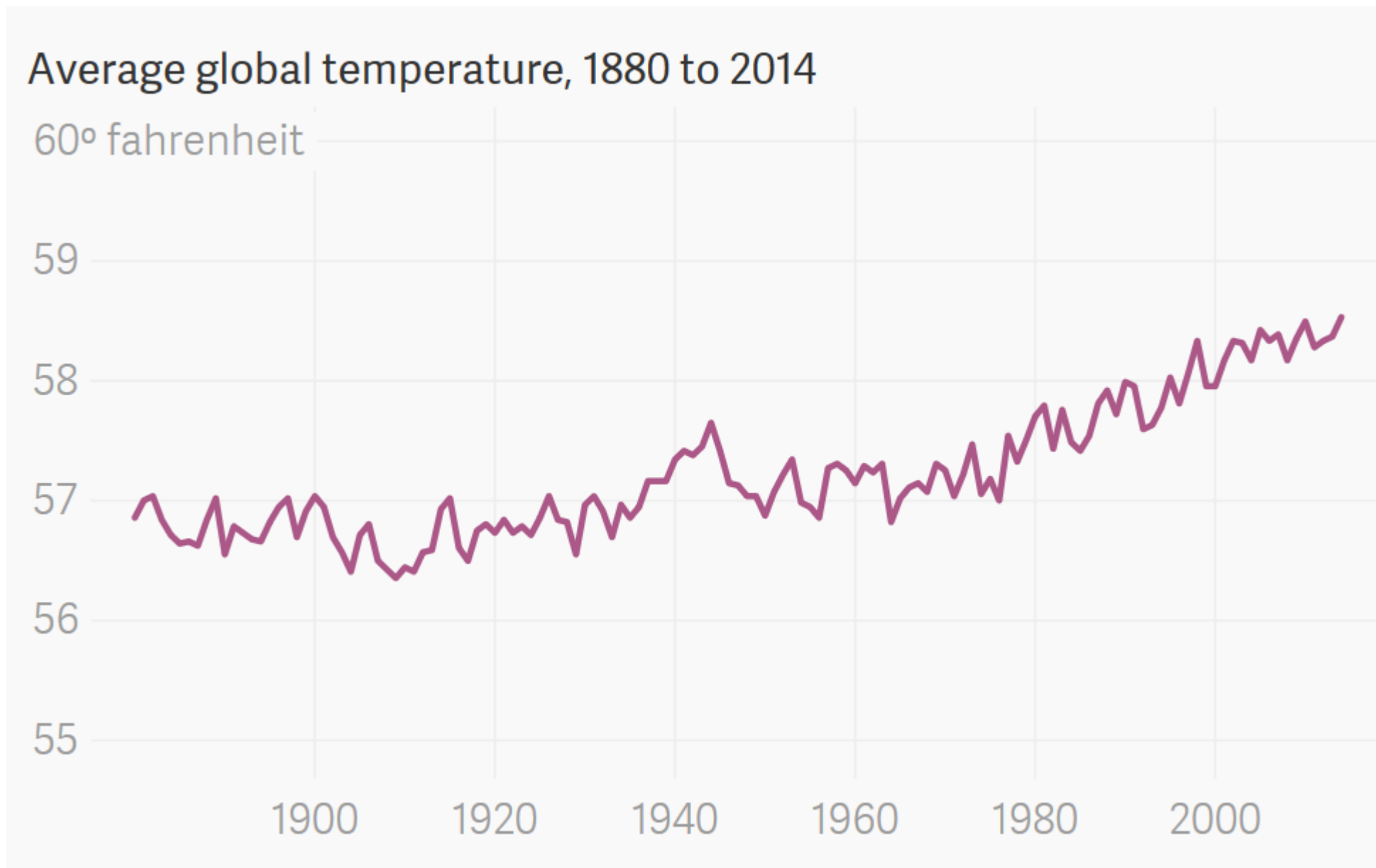
1920

1940

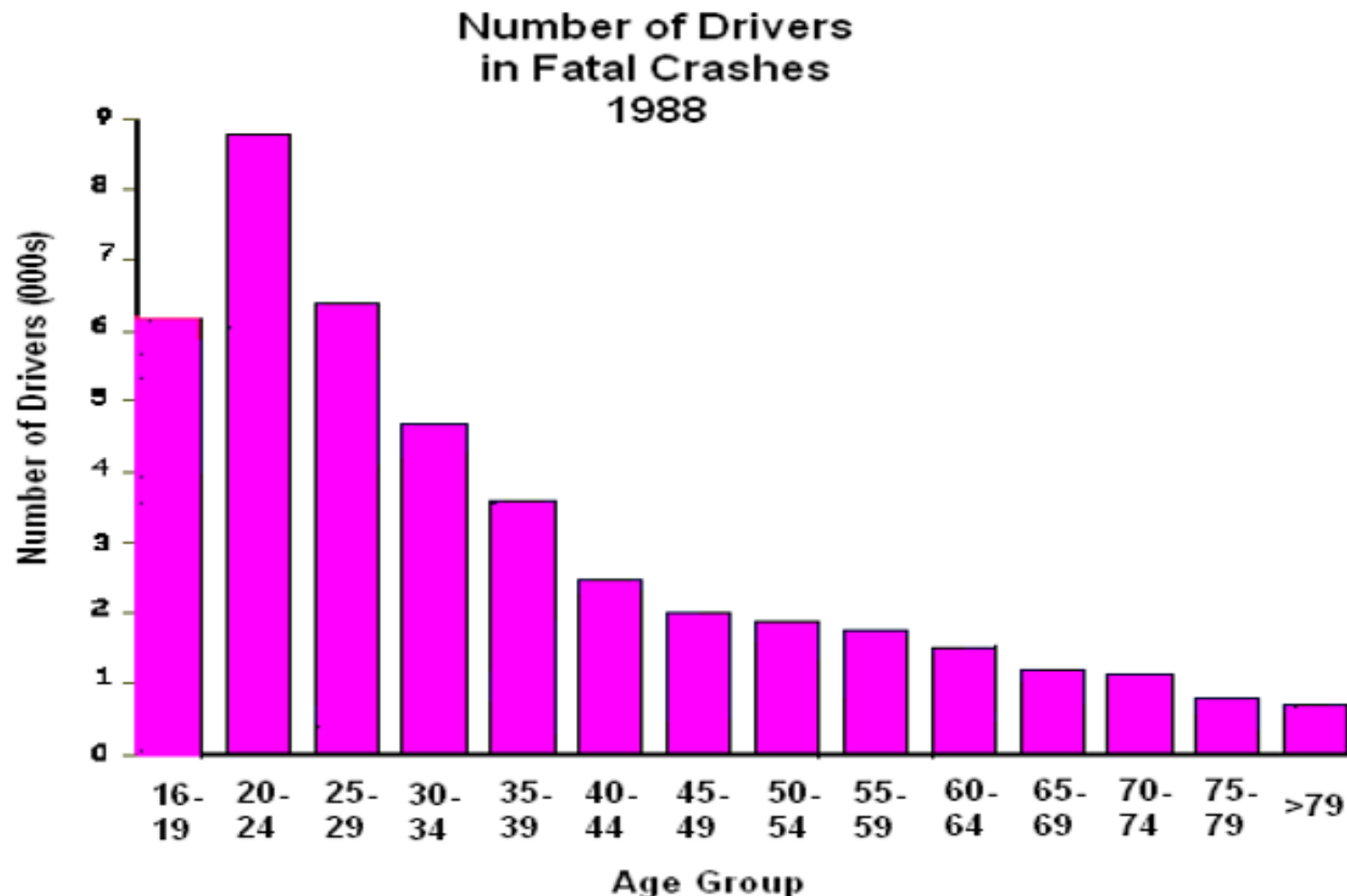
1960

1980

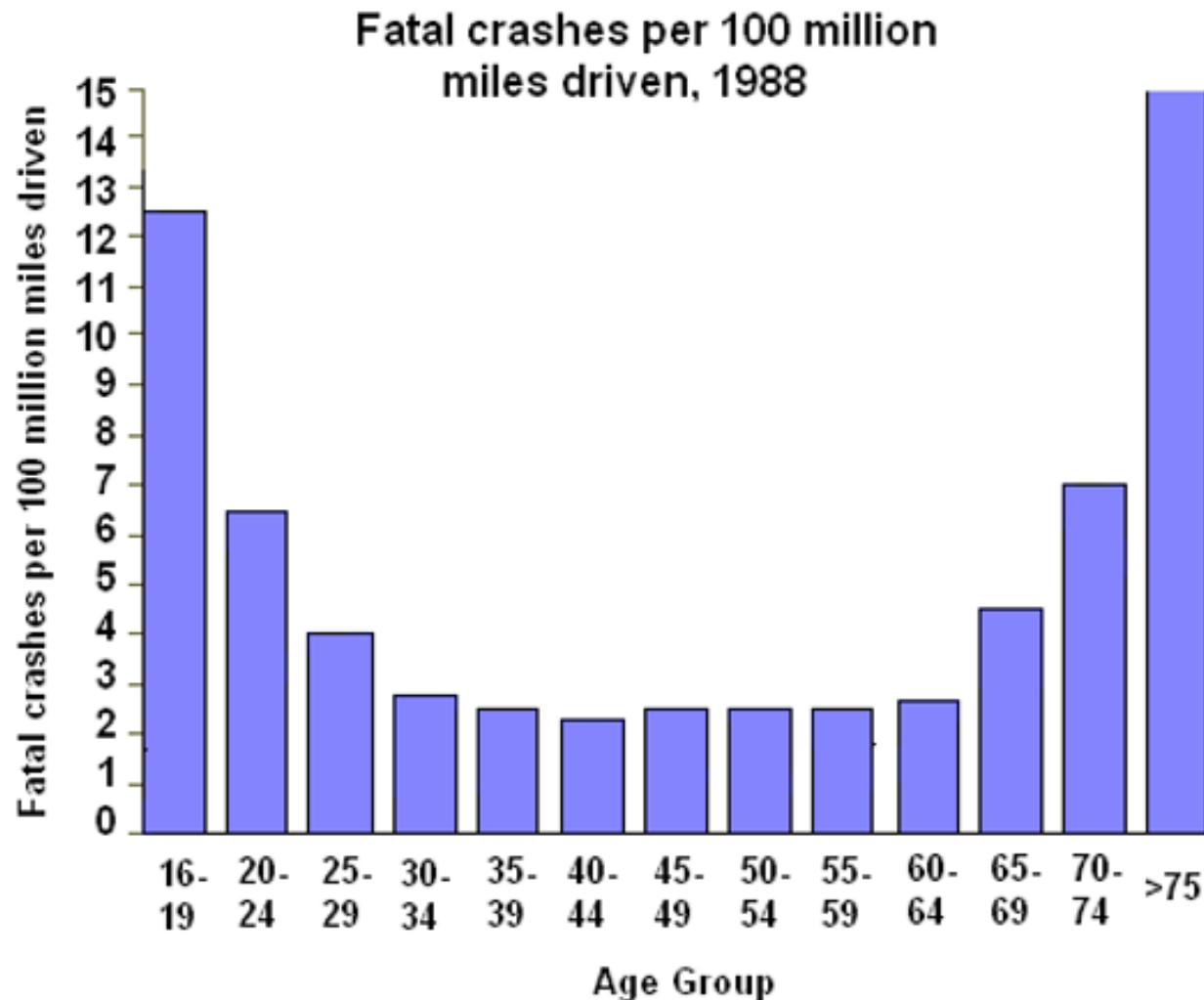
2000



The following statistics suggest that 16-year-olds are safer drivers than people in their twenties, and that octogenarians are very safe. Is this true?







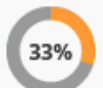






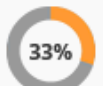


Solution: No. As the following graph shows, the reason 16-year-old and octogenarians appear to be safe drivers is that they don't drive nearly as much as people in other age groups.



Problem:

- Online Education company KS 1,2,3 – ages 5-14.
- How should they portray data on student performance in the different parts of the curriculum?

NUMBER AND PLACE VALUE	2.NP.V.1	2.NP.V.2	2.NP.V.3	2.NP.V.4	2.NP.V.5	2.NP.V.6	ADDITION AND SUBTRACTION	2.AS.1A	2.AS.1B	2.AS.2	2.AS.3A	2.AS.3B	2.AS.3C	2.AS.4	2.AS.5	MULTIPLICATION AND DIVISION	2.MD.1	
	FULL	FULL	FULL	FULL	FULL	FULL		FULL	FULL	FULL	FULL	FULL	FULL	FULL	FULL		FULL	FULL
	-	-	-	-	-	-		-	-	-	-	-	-	-	-		-	-
	33%	57%	30%	18%	46%	70%		43%	17%	16%	16%	16%	10%	47%	13%		15%	
																		
																		

Problem:

- Online Education company KS 1,2,3 – ages 5-14.
- How should they portray data on student performance in the different parts of the curriculum?

Year 2													
	2.NPV.1	2.NPV.2	2.NPV.3	2.NPV.4	2.NPV.5	2.NPV.6	2.AS.1A	2.AS.1B	2.AS.2	2.AS.3A	2.AS.3B	2.AS.3C	2.AS.4
Student 1	25%	60%	33%			66%	40%		11%				33%
Student 2													
Student 3	16%	40%	33%			66%	40%		11%				33%
Student 4	16%	60%	33%		50%	66%	40%		11%				33%
Student 5	91%	80%	33%		100%	100%	80%	75%	44%	100%	100%	50%	100%
Student 6	8%	20%				66%	40%						33%
Student 7	100%	100%	100%	100%	100%	100%	100%	100%	66%	100%	100%	50%	100%
Student 8		40%				66%							
Student 9		40%	33%			66%	20%						33%
Student 10	33%	100%	33%		100%	66%	60%		11%				33%
Student 11	33%	80%	33%		100%	66%	40%		11%				33%