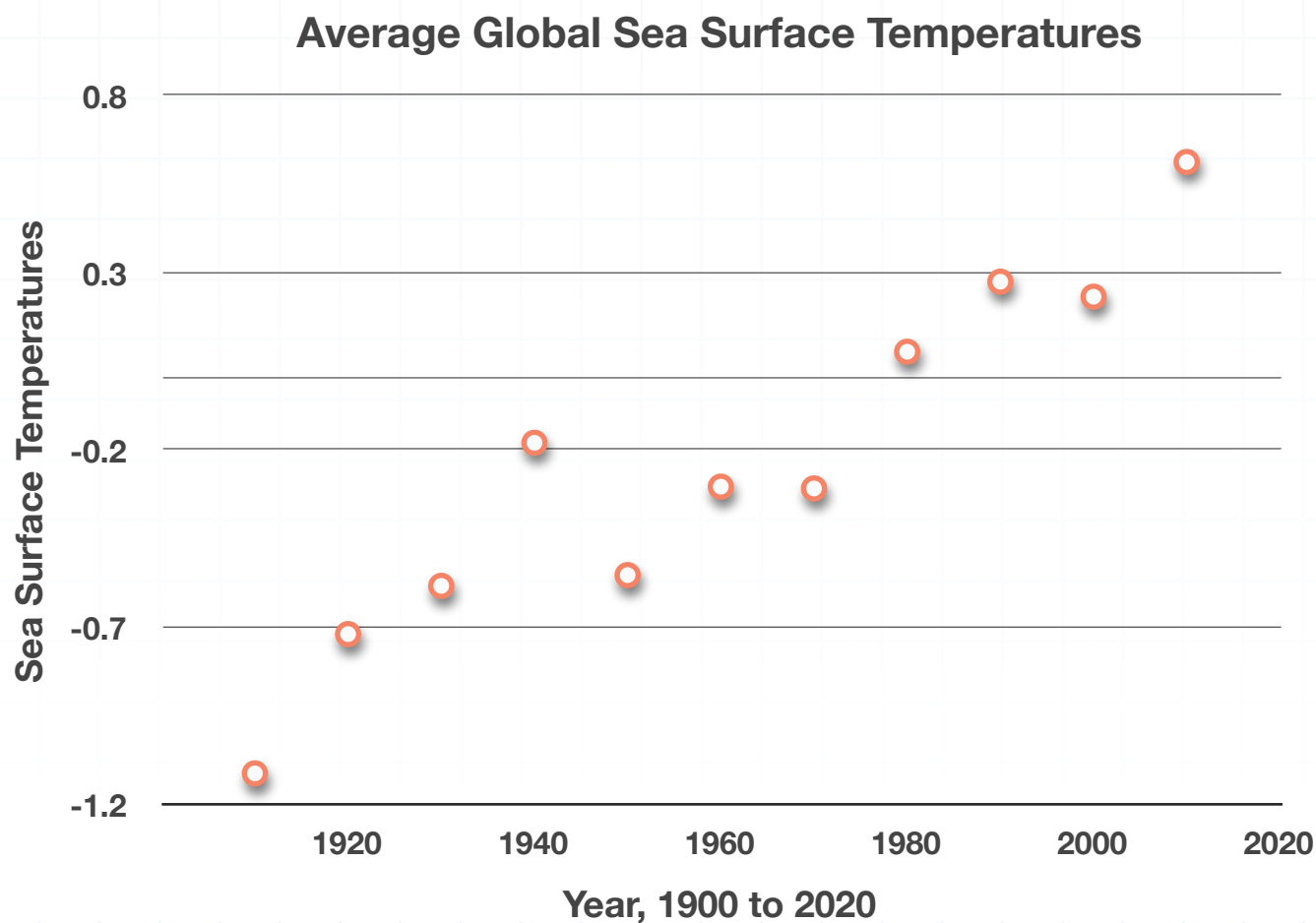


Topic: Scatterplots and regression

Question: Based on the scatterplot, which choice best explains the trend in the data?

**Answer choices:**

- A There appears to be a strong, positive, linear relationship between sea surface temperatures and time.
- B There appears to be a strong, negative, linear relationship between sea surface temperatures and time.



- C There appears to be a weak, positive, linear relationship between sea surface temperatures and time.
- D There appears to be a weak, negative, linear relationship between sea surface temperatures and time.

Solution: A

There appears to be a strong, positive, linear relationship between sea surface temperatures and time.

As time increases, the sea surface temperatures are also increasing. This means there's a positive relationship between time and temperature because as one goes up the other also goes up.

The points are relatively well clustered together so this implies a strong relationship. The section of the graph that we're looking at is linear in nature since the points trend upward from left to right.



Topic: Scatterplots and regression**Question:** Use the table to find the sum.

$$\sum xy$$

x	54	57	62	77	81	93	98
y	0.162	0.127	0.864	0.895	0.943	1.206	1.372

Answer choices:

A $\sum xy = 522$

B $\sum xy = 5.569$

C $\sum xy = 461.467$

D $\sum xy = 2,907.018$



Solution: C

The sum tells us to multiply each x -value by its corresponding y -value and then add those together.

x	y	xy
54	0.162	$54(0.162)=8.748$
57	0.127	$57(0.127)=7.239$
62	0.864	$62(0.864)=53.568$
77	0.895	$77(0.895)=68.915$
81	0.943	$81(0.943)=76.386$
93	1.206	$93(1.206)=112.158$
98	1.372	$98(1.372)=134.456$

Now add to find the sum.

$$\sum xy = 8.748 + 7.239 + 53.568 + 68.915 + 76.386 + 112.158 + 134.456$$

$$\sum xy = 461.467$$



Topic: Scatterplots and regression

Question: Corrina is conducting a study of how sleep and GPA are related. She surveys the students in her statistics class and creates a table comparing hours of sleep to GPA. Then she calculates the trend line of the data to be $y = 0.2069x + 1.817$. What is the correct interpretation of the slope of the trend line of the data?

Sleep	4	4	5	7	7	8	8	8	8	9	9	10
GPA	3	3	3	3	3	3	4	3	4	4	4	4

Answer choices:

- A For each additional hour of sleep, GPA decreased by 1.817 points.
- B For each additional hour of sleep, GPA decreased by 0.2069 points.
- C For each additional hour of sleep, GPA increased by 1.817 points.
- D For each additional hour of sleep, GPA increased by 0.2069 points.



Solution: D

The slope is the change in the y -values divided by the change in the x -values. In the case of this data, the y -value is the GPA and the x -values are the hours of sleep.

This means the slope has units “GPA points per hour.” This says that the interpretation of the slope of the best fit line is

“For each additional hour of sleep, GPA increased by 0.2069 points.”

