

AP Statistics - Scatterplots and Correlation - Test

Common Core AP STAT 2.4, AP STAT 2.5, HSS-ID.B.6, HSS-ID.C.8, HSS-ID.C.9 · maths-pdf.fr/en/

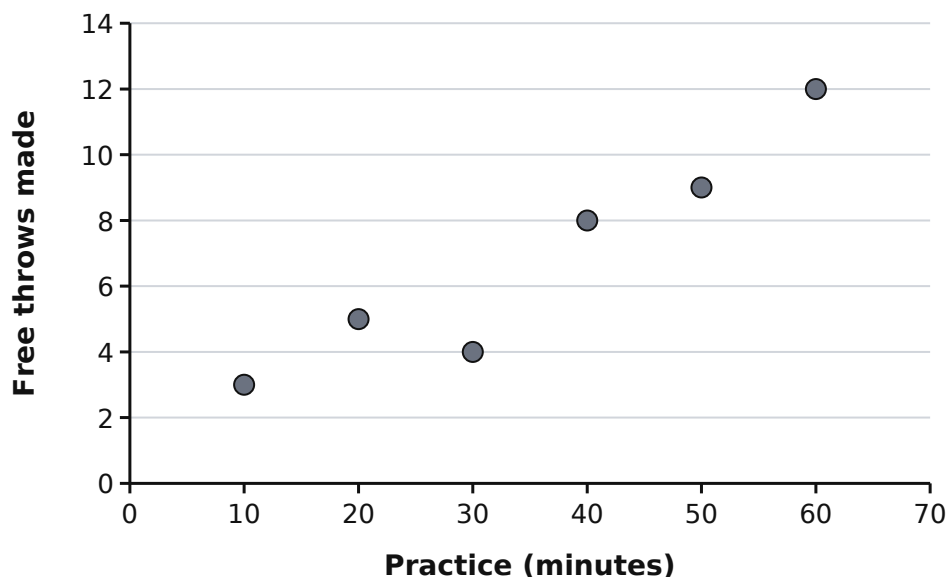
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test covers scatterplots, correlation, and the cautions about outliers and causation. Describe plots in context, show every calculation, and justify each conclusion in words.

About this test

- Grade: AP Statistics
- Chapter: Scatterplots and Correlation
- Standards: AP STAT 2.4, AP STAT 2.5, HSS-ID.B.6, HSS-ID.C.8, HSS-ID.C.9
- Time: 45 minutes
- Total: 20 points

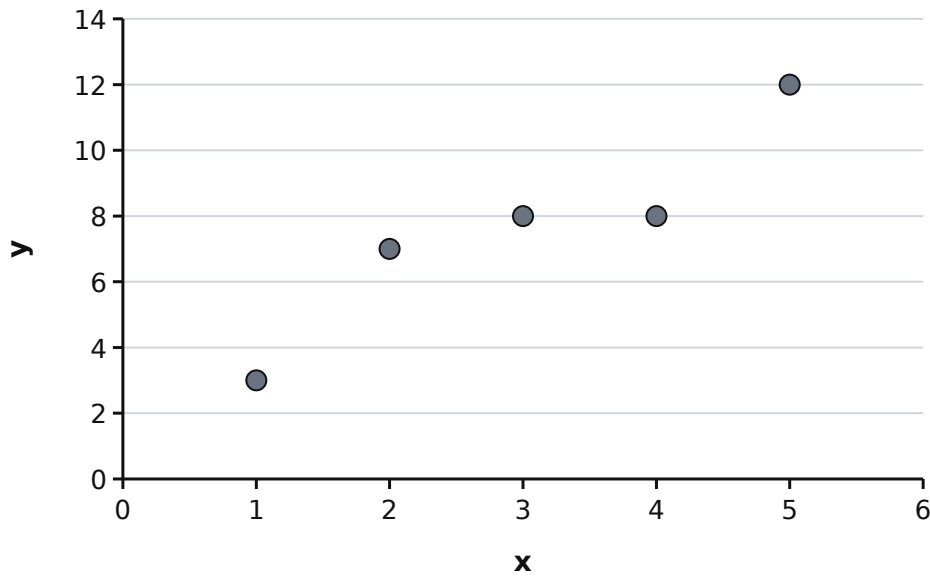
Question 1 - Describe a scatterplot [4 pts]



Minutes of practice and free throws made.

Describe the association in the scatterplot of practice time and free throws made. (4 points)

Question 2 - Compute r [3 pts]



Five points.

For these five points, x has mean 3 and sd 1.581, y has mean 7.6 and sd 3.209. Compute r from the z-scores. (3 points)

Question 3 - Interpret and units [3 pts]

The correlation between a car's age and its price is $r = -0.91$. (a) Interpret r in context. (1 point) (b) If every price is multiplied by 0.9 for a 10% discount, what happens to r ? (1 point) (c) Does the correlation show that age lowers price? (1 point)

Question 4 - r and curved data [2 pts]

A scatterplot shows points in a perfect U shape. $r = 0.02$. A student says the variables are unrelated. Respond.

Question 5 - Outlier effect [2 pts]

A scatterplot of 12 points has $r = 0.30$. Removing one point near the right end, far below the others, changes r to 0.80. Explain.

Question 6 - Lurking variable [2 pts]

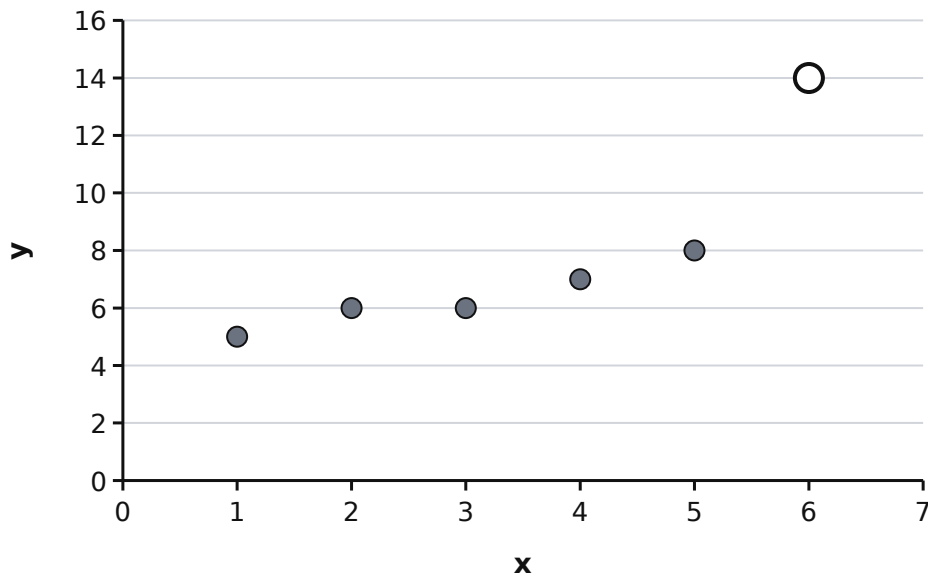
Cities with more firefighters at a fire tend to have more damage. Explain why this does not

mean firefighters cause damage.

Question 7 - Match plots [2 pts]

Order $r = 0.95$, $r = -0.2$, $r = 0$, and $r = -0.7$ from the weakest to the strongest linear association.

Question 8 - Unusual point [2 pts]



A scatterplot with an unusual point.

Identify the unusual point and say whether r is increased or decreased by it compared with the other five points alone.