

Grade 8 - Scatter Plots and Association - Worksheet

Common Core 8.SP.A.1, 8.SP.A.2 · maths-pdf.fr/en/

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

These 21 problems practice scatter plots, patterns of association, outliers and informal trend lines (Common Core 8.SP.A.1 and 8.SP.A.2). Each problem has its own space for work, so print the page and write directly on it.

The problems start with direct skill checks and grow harder as you go. Later items describe patterns, draw trend lines and make predictions from data. Use the answer key afterwards to check every step.

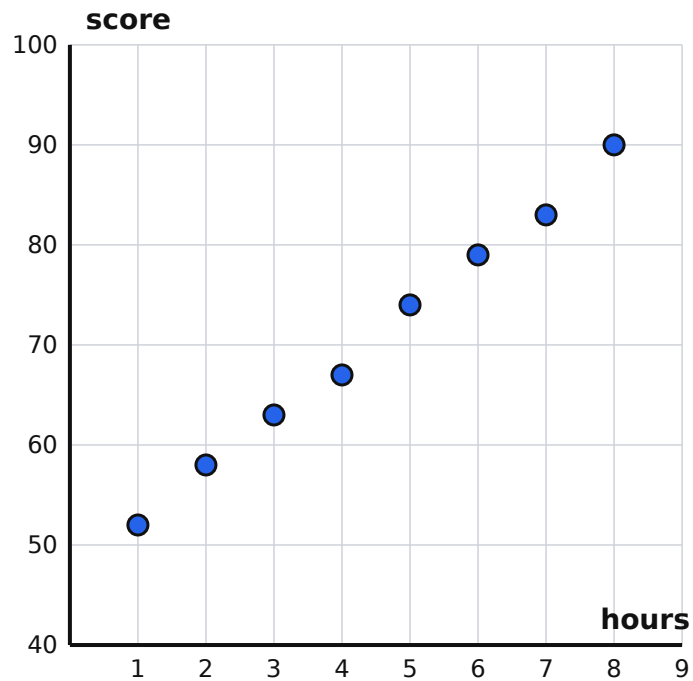
Grade 8 · Common Core State Standards: **8.SP.A.1, 8.SP.A.2**

Exercise 1 - Plot the data

hours	1	2	3	4
score	5	5	8	5

Plot the points (hours, score) from the table on a coordinate grid. Which axis shows the hours?

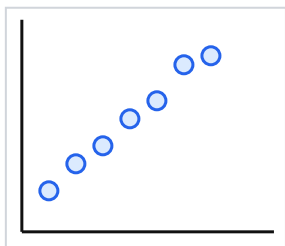
Exercise 2 - Describe the association



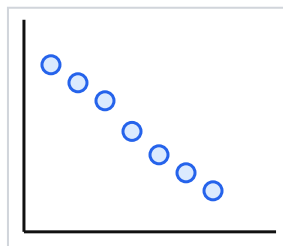
Study time and test score.

Describe the association between hours studied and test score.

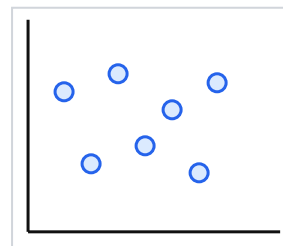
Exercise 3 - Three plots



Positive



Negative

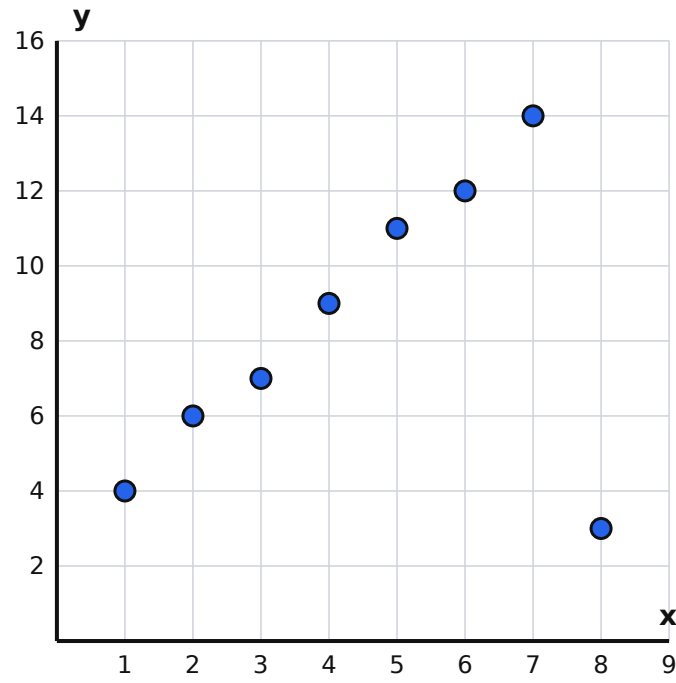


No association

Positive, negative and no association.

Name the type of association shown in each of the three plots.

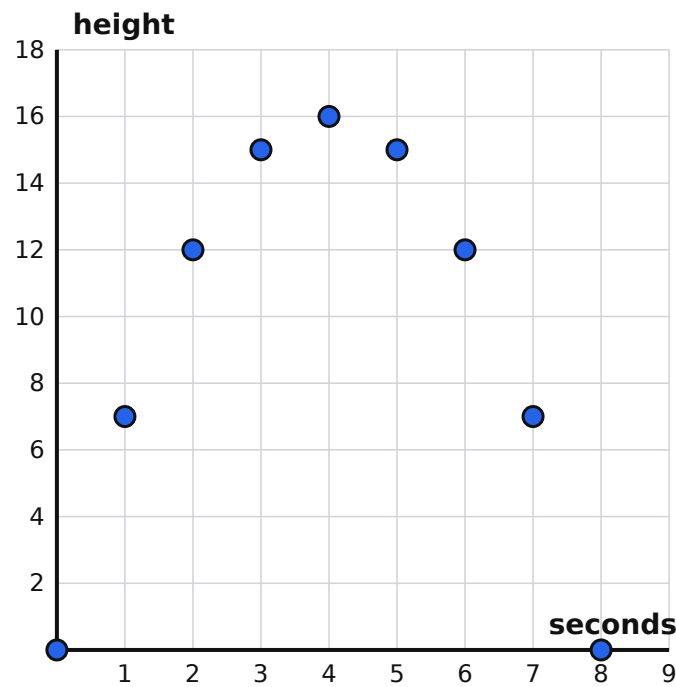
Exercise 4 - Find the outlier



Eight points.

Identify the outlier in the scatter plot.

Exercise 5 - Linear or nonlinear



A thrown ball.

The scatter plot shows the height of a ball over time. Is the association linear or nonlinear?

Describe it.

Exercise 6 - Shoe size and height

Predict the type of association between a person's shoe size and height. Explain.

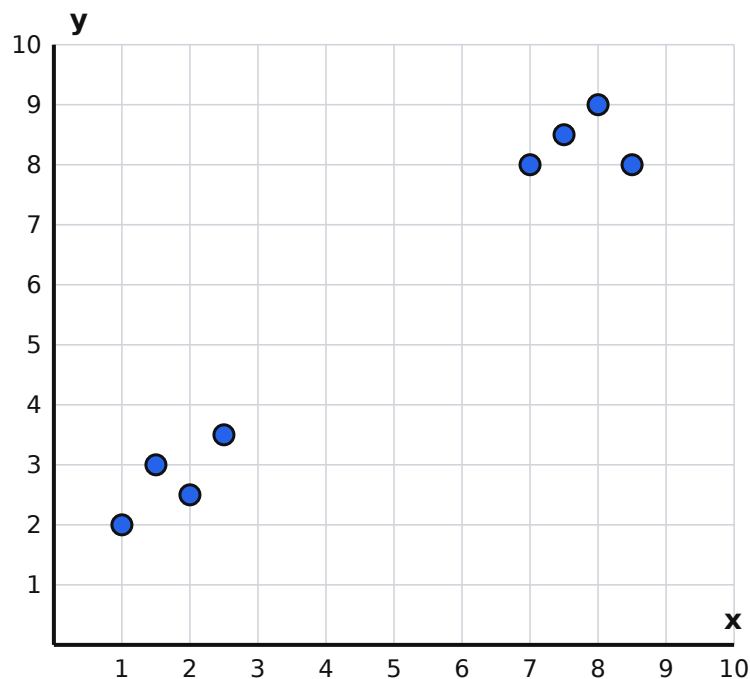
Exercise 7 - Cocoa sales

A cafe records the temperature and the cups of hot cocoa sold each day. Predict the type of association.

Exercise 8 - No association

Do you expect an association between a student's birth month and their score on a math test? Explain.

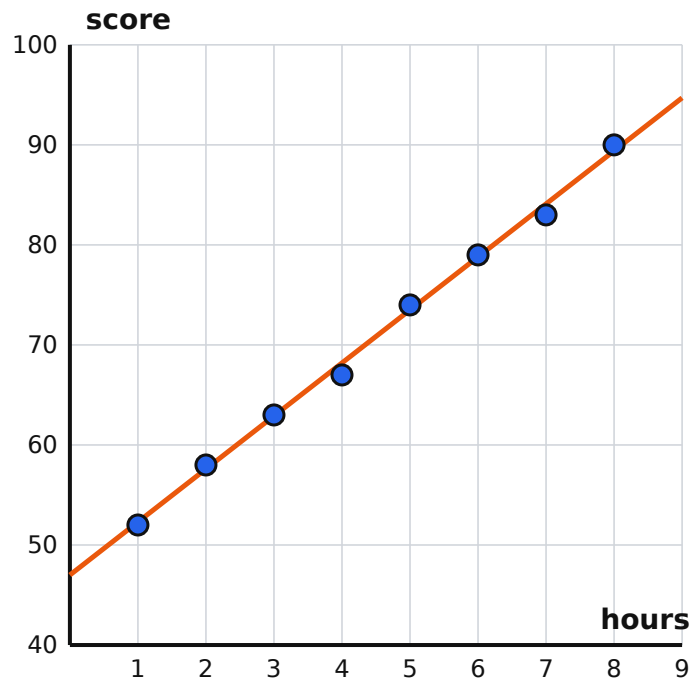
Exercise 9 - Clusters



Two groups of points.

Describe the clusters in the scatter plot.

Exercise 10 - Trend line slope



A trend line.

A trend line passes through (1,52) and (8,90). Find its slope to the nearest tenth. What does it mean?

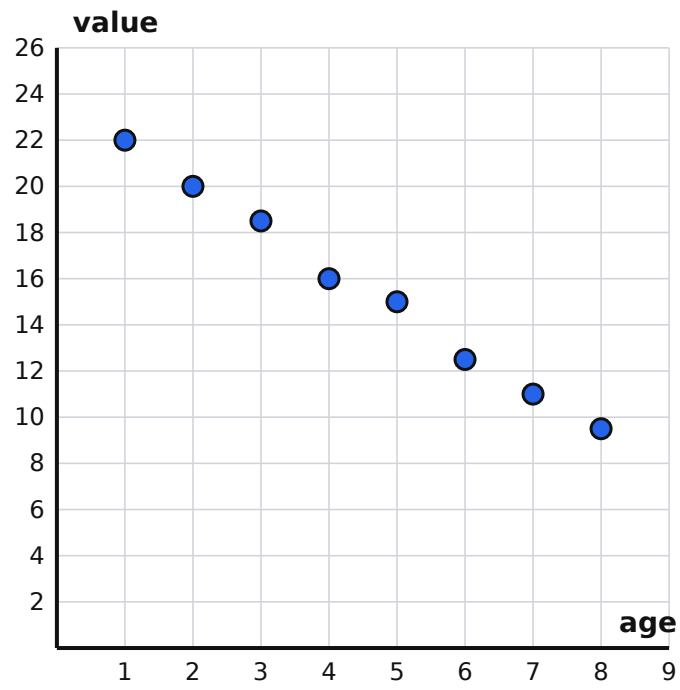
Exercise 11 - Equation of a trend line

A student fits the study data with the line $y = 5.3x + 47$. Check that this line is close to the data points (2,58) and (6,79).

Exercise 12 - Predict

Use the line $y = 5.3x + 47$ to predict the score for 7 hours of study.

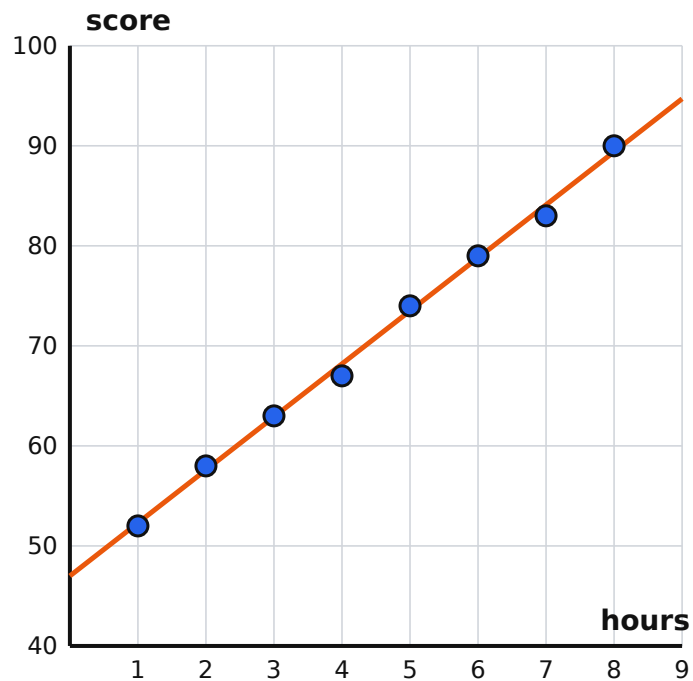
Exercise 13 - Car value



Car value in thousands of dollars.

The scatter plot shows the value of a car (in thousands of dollars) by its age in years. Describe the association.

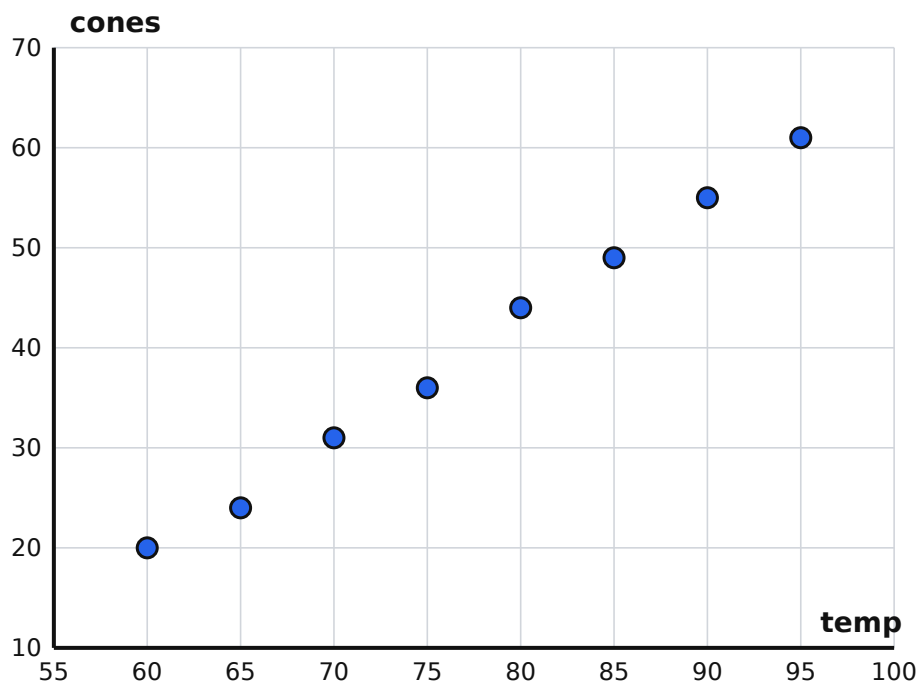
Exercise 14 - Compare two lines



Line A: $y = 5.3x + 47$.

Line A is $y = 5.3x + 47$. Line B is $y = 3x + 40$. Which line fits the study data better? Explain.

Exercise 15 - Ice cream sales



Ice cream cones sold by temperature in degrees F.

An ice cream truck records cones sold and the temperature ($^{\circ}\text{F}$). Describe the association.

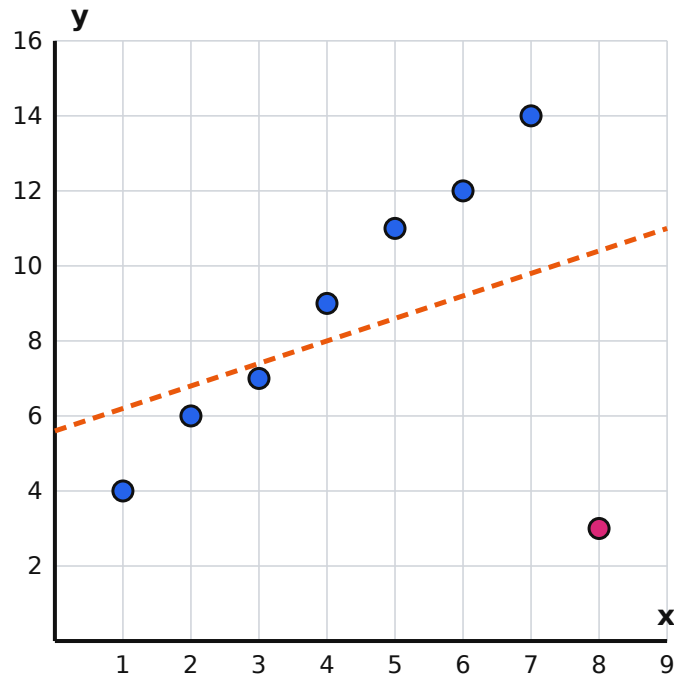
Exercise 16 - Ice cream trend line

A trend line for the ice cream data is $y = 1.2x - 53$, where x is the temperature in $^{\circ}\text{F}$ and y is the number of cones. Predict the cones sold at 100°F .

Exercise 17 - Basketball practice

Priya records minutes of practice and free throws made out of 20: (10, 8), (20, 10), (30, 13), (40, 15), (50, 18). Describe the association and estimate the slope between the first and last points.

Exercise 18 - Effect of an outlier



A trend line fitted to all eight points.

A student draws a line through all eight points, including the outlier (8, 3). Why might this line be a poor description of the first seven points?

Exercise 19 - Cause and effect

A town finds that shoe size and reading score are positively associated among elementary school children. Does a bigger shoe size cause a better reading score? Explain.

Exercise 20 - Choose the best description

A scatter plot has points that fall from the upper left to the lower right and stay close to a line. Which description is best: (a) strong positive, (b) strong negative, (c) weak negative, (d) no association?

Exercise 21 - Explain a good fit

How can you tell whether a trend line fits a scatter plot well?