

Lesson 10.1 Scatter Plots Day 1

Week 1 Wednesday Course 3 Warm-up

Which of the following has the same value as $3^2 \cdot 3^{-5}$?

- A) 9^{-10}
- B) 3^{-10}
- C) 9^{-3}
- D) 3^{-3}

Which value in scientific notation is about 9,802,733?

- A) 10^6
- B) 10^7
- C) 9×10^7
- D) 9×10^8

What does the following represent?

$$\sqrt[3]{24}$$

- A) the cube of 24
- B) 24 divided by 3
- C) the cube root of 24
- D) the product of 24 and 3



Solve for p .

$$\frac{1}{3}(4p - 9) = 8p + 12$$

- A) $-\frac{15}{4}$
- B) $-\frac{9}{4}$
- C) $\frac{9}{4}$
- D) $\frac{15}{4}$

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Objective


TSW

- Construct a scatter plot given two sets of quantitative data.
- Identify patterns of association between two sets of quantitative data.
- Identify outliers in a scatter plot.

Common Core State Standards

8.SP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two variables.

Mathematical Practices 1. Solve problems/persevere. 2. Reason. 4. Model mathematics.



▶ A line of best fit can be used to model the linear association of bivariate quantitative data. A two-way table displays the relative frequencies of categorical data.

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Use Glossary to write definition of Vocabulary

TSW

- Construct a scatter plot given two sets of quantitative data.
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Vocabulary-

Bivariate data-

Quantitative data-

Example:

Scatter Plot-

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Vocabulary-

Bivariate data- Data that involve two variable (not a linear function)

Quantitative data- data that involves variables that can be measured

Example: Height, number of cars on street

Scatter Plot- A display of two corresponding sets of data plotted on a coordinate plane

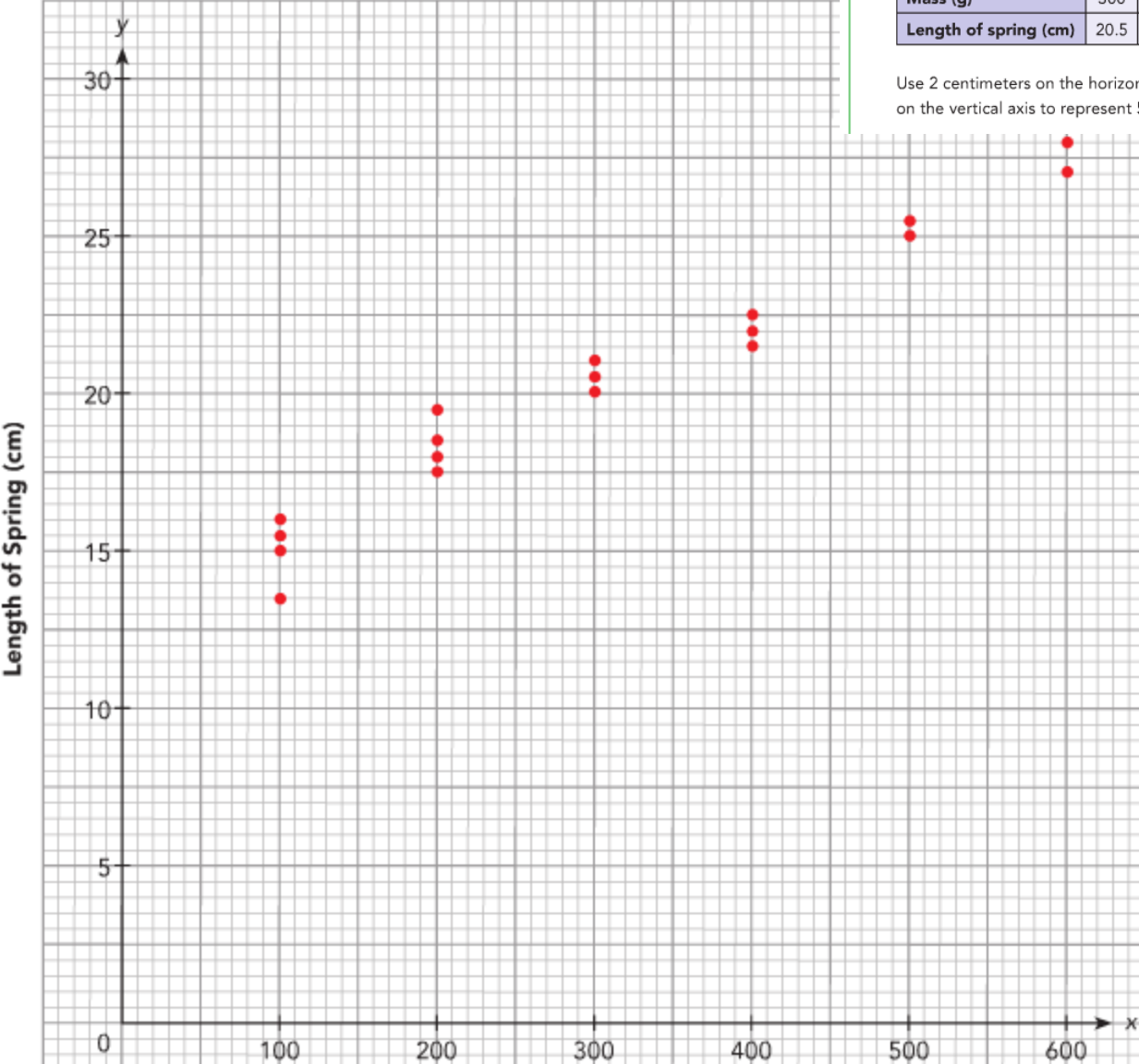
Can be counted and expressed numerically

Root Word Quant means “How much?”

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Solution

Length of Spring When Stretched



Example 1 Draw a scatter plot given a table of bivariate data.

The table shows the results of an experiment to determine the length, y centimeters, that a spring stretches when a mass of x grams is suspended from it.

Mass (g)	100	200	300	200	400	500	100	600	200
Length of spring (cm)	13.5	17.5	20.0	19.5	22.0	25.5	15.0	28.0	18.0

Mass (g)	300	400	100	400	200	100	600	300	500
Length of spring (cm)	20.5	21.5	16.0	22.5	18.5	15.5	27.0	21.0	25.0

Use 2 centimeters on the horizontal axis to represent 100 grams. Use 2 centimeters on the vertical axis to represent 5 centimeters. Draw a scatter plot of this data.



Handwritten area with horizontal blue lines for notes.

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Guided Practice

Use graph paper.

- 1 The table shows some monetary exchanges between U.S. dollars, x dollars, and Japanese yen, y yen, over a time period of four months at a major airport.

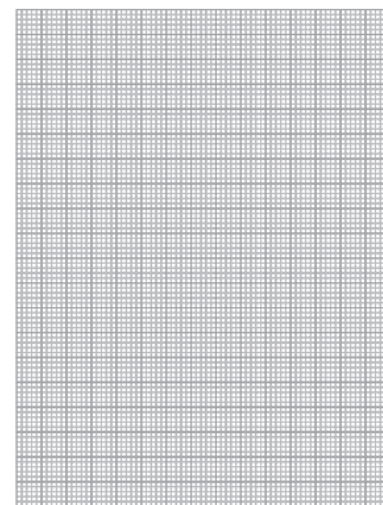
U.S. Dollar	10	20	28	42	54	60	12	18	34
Japanese Yen (1,000s)	0.8	1.7	2.3	3.4	4.6	4.9	1.0	1.5	2.7

U.S. Dollar	36	48	54	34	52	18	12	26	44
Japanese Yen (1,000s)	3.1	3.8	4.5	2.9	4.2	1.4	0.9	2.0	3.6

Draw a scatter plot for these data. Use 2 centimeters on the horizontal axis to represent \$10. Use 2 centimeters on the vertical axis to represent 500 yen.

Teacher Resource Tools

TR10 Decimal Grid Paper



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Practice 10.1 #1-3

Name: _____ Date: _____

Practice 10.1

Draw a scatter plot for each table of bivariate data.

1 Use 1 centimeter on the horizontal axis to represent 10 units. Use 1 centimeter on the vertical axis to represent 20 units.

x	10	20	30	70	50	40	50
y	36	60	100	212	156	124	144

x	30	20	30	10	60	60	70
y	96	64	92	40	184	180	216

2 Use 1 centimeter on the horizontal axis to represent 5,000 people. Use 2 centimeters on the vertical axis to represent 5,000 cars.

Population (x in 1,000s)	10	20	20	35	30	10	40
Cars (y in 1,000s)	1	2	3	15	9	2	32

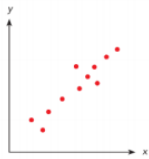
Population (x in 1,000s)	25	15	15	25	40	35	20
Cars (y in 1,000s)	4	1	2	5	30	16	5

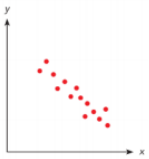
3 Use 1 centimeter on the horizontal axis to represent 1 hour. Use 1 centimeter on the vertical axis to represent a score of 10.

Study Time (x hours)	2	3	5	6	7	4	9
Test Score (y)	22	32	48	62	76	40	90

Study Time (x hours)	8	5	6	4	7	9	3
Test Score (y)	84	52	60	42	72	86	36

Describe the association shown in the bivariate data for each scatter plot.

4 

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Course 3

Challenge-

*#13 & 17 provide challenge

*Pick a Problem

*BuzzMath



 Lesson Check #1-can draw scatter plots

Ticket Out the Door- Connect, Extend, Challenge

1. How are the ideas and information presented **CONNECTED** to what you already knew?
2. What new ideas did you get that **EXTENDED** or pushed your thinking in new directions?
3. What is still **CHALLENGING** or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?