IMKH California

Algebra 1

Teacher Resource Copy Masters

UNITS 1-3

Illustrative Mathematics LEARN MATH FOR LIFE | Kendall Hunt

Book 1
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ALGEBRA 1

UNITS

1-3

Teacher Resource Copy Masters

BLACKLINE MASTERS LIST

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Algebra1.1.1.1	6–12 Blank Math Community Chart	30	no	no	no	no	no	no
Activity Algebra1.1.4.2	Matching Distributions Cards	2	no	yes	no	no	no	no
Activity Algebra1.1.5.2	Heartbeats Part 1 Handout	2	yes	yes	no	no	no	no
Activity Algebra1.1.5.3	Algebra 1 Unit 1 Useful Terms and Displays	30	no	no	no	no	yes	no
Activity Algebra1.1.11.2	Describing Data Distributions Cards	2	no	yes	no	no	no	no
Activity Algebra1.1.12.3	Algebra 1 Unit 1 Useful Terms and Displays	30	no	no	no	no	yes	no
Activity Algebra1.1.13.2	African and Asian Elephants Cards	2	no	yes	no	no	no	no

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Algebra1.1.14.1	Algebra 1 Unit 1 Useful Terms and Displays	30	no	no	no	no	yes	no
Activity Algebra1.1.16.3	Heights and Handedness Handout	2	no	no	no	no	no	no
Activity Algebra1.2.16.3	What Comes Next Cards	2	no	yes	no	no	no	no
Activity Algebra1.2.17.3	Sorting Systems Cards	2	no	yes	no	no	no	no
Activity Algebra1.2.18.3	Linear Systems Cards	2	no	yes	no	no	no	no
Activity Algebra1.3.1.3	Running to the Dentist Cards	2	no	yes	no	no	no	no
Activity Algebra1.3.5.2	Data Patterns Cards	2	no	yes	no	no	no	no
Activity Algebra1.3.6.3	Best Residuals Cards	2	no	yes	no	no	no	no

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Algebra1.3.7.2	Scatter Plot Fit Cards	2	no	yes	no	no	no	no
Activity Algebra1.3.10.2	Playing Dirty Handout	2	no	no	no	no	no	no
Activity Algebra1.4.6.3	Representations of Inequalities Cards	2	no	yes	no	no	no	no
Activity Algebra1.4.8.3	Terms of A Team Cards	2	no	yes	no	no	no	no
Activity Algebra1.5.10.2	Possible or Impossible Cards	2	no	yes	yes	no	no	no
Activity Algebra1.5.12.4	Piecing It Together Cards	2	yes	yes	no	no	no	no
Activity Algebra1.5.13.1	How Good Are Your Guesses Handout	1	yes	no	no	no	no	no
Activity Algebra1.5.17.2	Caesar Says, "Shift" Cutouts	2	no	yes	yes	no	no	no

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Activity Algebra1.5.18.3	Custom Mugs Cards	2	no	yes	no	no	no	no
Activity Algebra1.6.6.3	Matching Descriptions to Graphs Cards	2	no	yes	no	no	no	no
Activity Algebra1.6.12.4	Smartphone Sales Cards	2	no	yes	no	no	no	no
Activity Algebra1.7.12.4	Representations of Quadratic Functions Cards	2	no	yes	no	no	no	no
Activity Algebra1.7.14.4	Rocket Math Cards	2	no	yes	no	no	no	no
Activity Algebra1.7.16.3	Matching Equations with Graphs Cards	2	no	yes	no	no	no	no
Activity Algebra1.8.1.2	A Trip to the Frame Shop Handout	1	yes	no	no	no	no	no

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Activity Algebra1.8.22.4	Features of Functions Cards	2	no	yes	no	no	no	no
Modeling Prompt: Evaluating a Sample Response to a Modeling Prompt	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Evaluating a Sample Response to a Modeling Prompt	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Display Your Data	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Display Your Data	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: College Characteristics	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: College Characteristics	Modeling Rubric	1	yes	no	no	no	no	no

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Modeling Prompt: College Characteristics	College Data for Task Statement 1	1	no	no	no	no	no	no
Modeling Prompt: College Characteristics	College Data for Task Statement 2	1	no	no	no	no	no	no
Modeling Prompt: A New Heating System	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: A New Heating System	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Giving Bonuses	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Giving Bonuses	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Planning a Vacation	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Planning a Vacation	Advice on Modeling	1	no	no	no	no	no	no

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Modeling Prompt: Critically Examining National Debt	US National Debt Data	1	no	no	no	no	no	no
Modeling Prompt: Critically Examining National Debt	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Critically Examining National Debt	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Designing a Fountain	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Designing a Fountain	Modeling Rubric	1	yes	no	no	no	no	no
Modeling Prompt: Planning a Concert	Advice on Modeling	1	no	no	no	no	no	no
Modeling Prompt: Planning a Concert	Modeling Rubric	1	yes	no	no	no	no	no

ALGEBRA 1

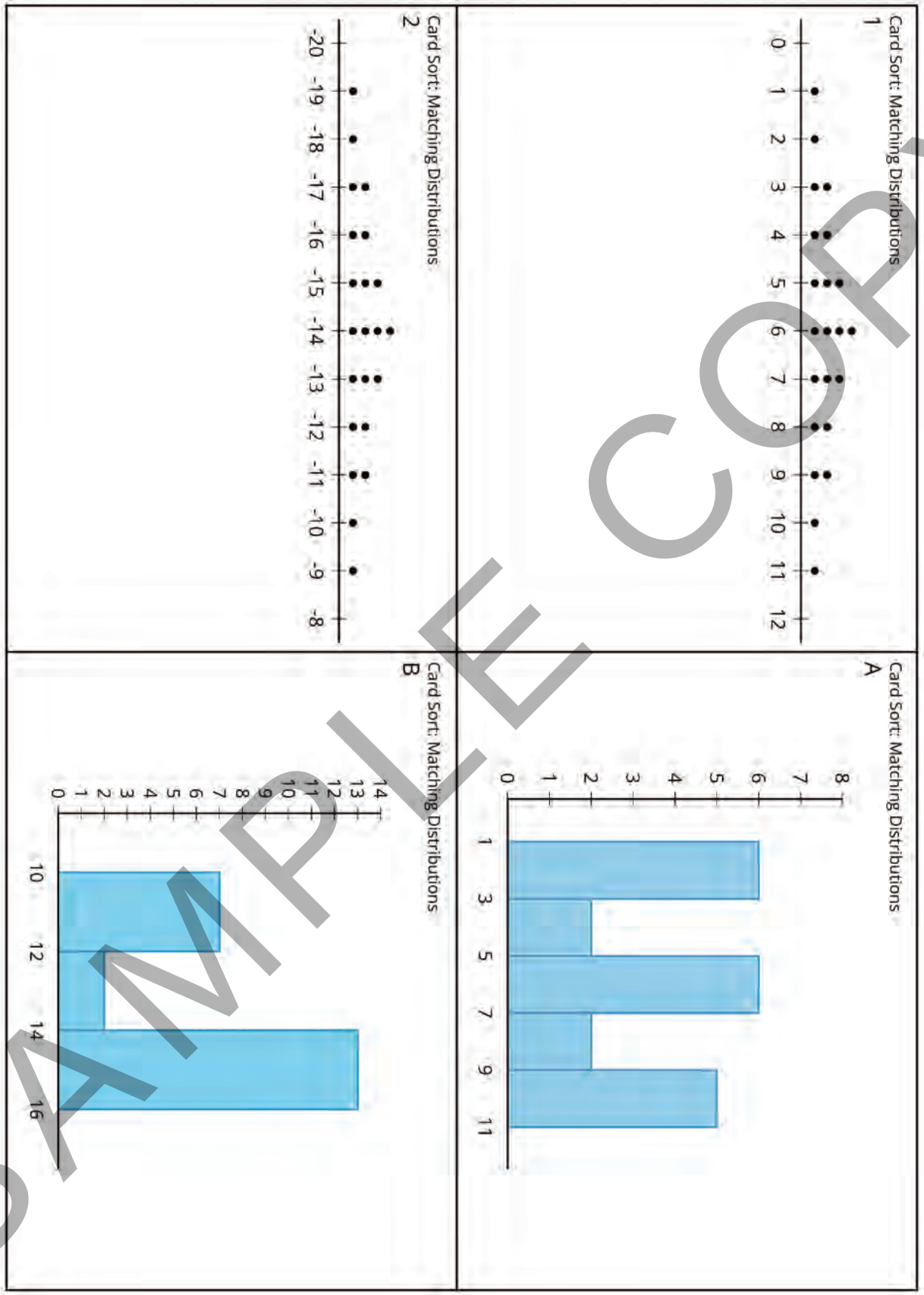
UNIT

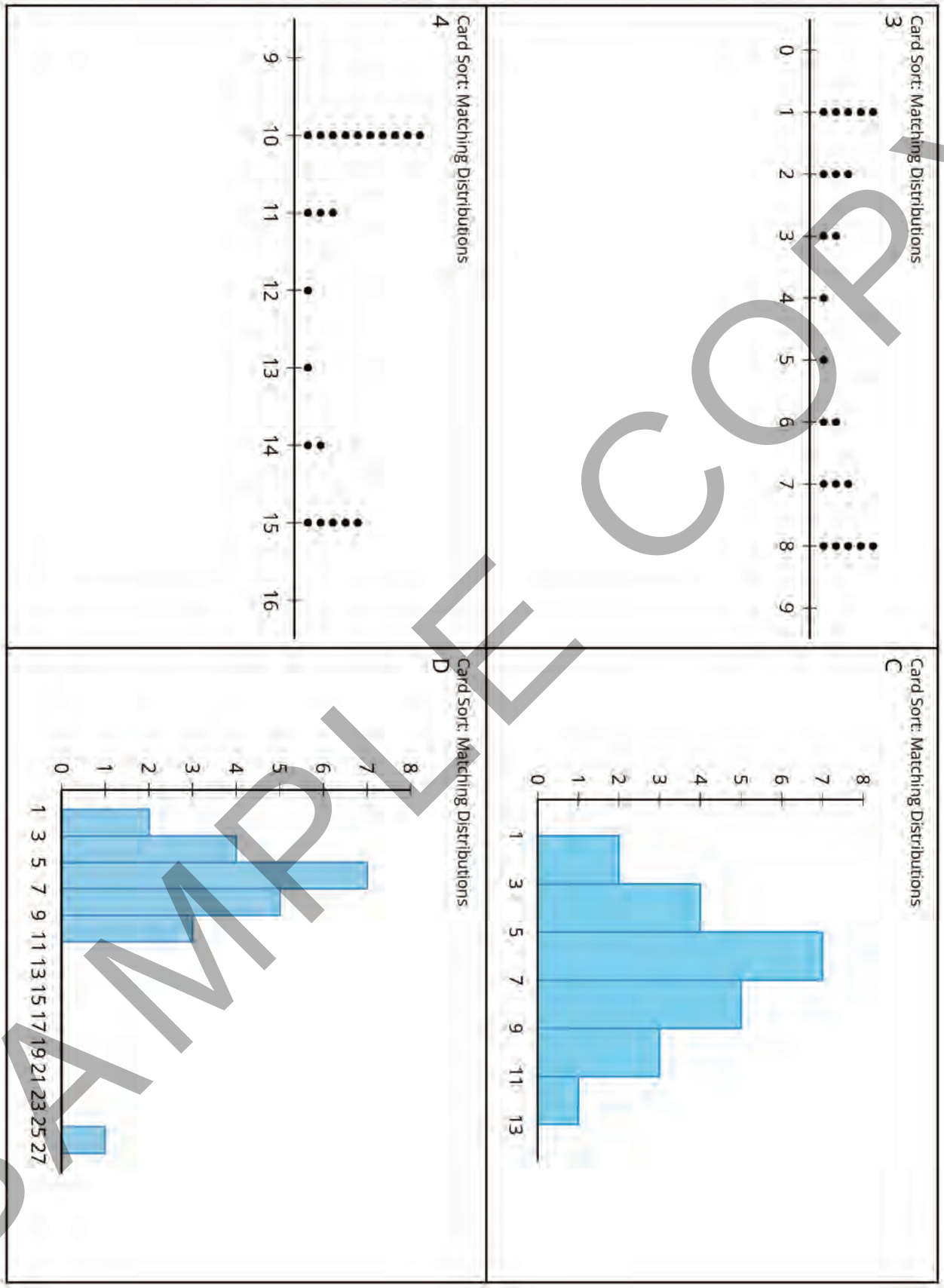
1

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

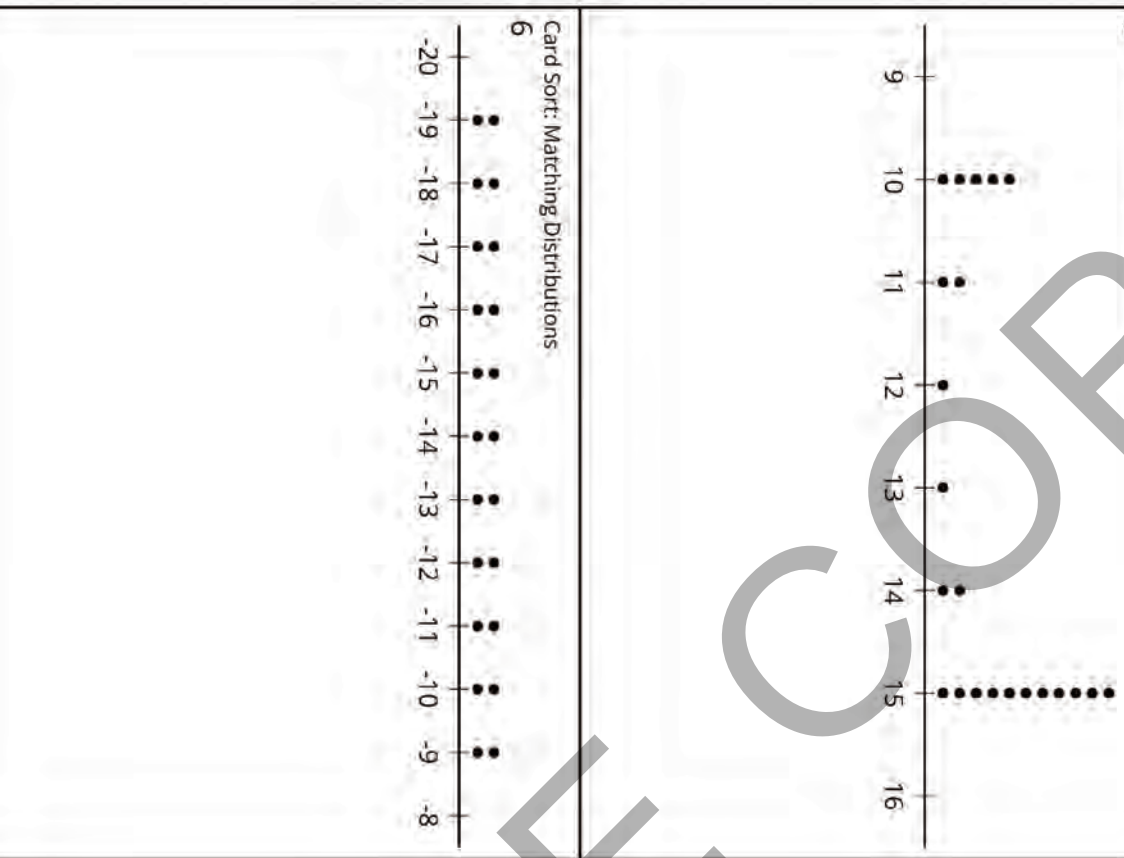
Math Community	
Doing Math	**Norms**
Students Looks like / Sounds like	**Students**
Teacher Looks like / Sounds like	**Teacher**


Card Sort: Matching Distributions
1
0 1 2 3 4 5 6 7 8 9 10 11 12
Card Sort: Matching Distributions
A
0 1 2 3 4 5 6 7 8
1 3 5 7 9 11
Card Sort: Matching Distributions
2
-20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8
Card Sort: Matching Distributions
B
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
10 12 14 16


Card Sort: Matching Distributions
3
0 1 2 3 4 5 6 7 8 9
Card Sort: Matching Distributions
C
0 1 2 3 4 5 6 7 8
1 3 5 7 9 11 13
Card Sort: Matching Distributions
4
9 10 11 12 13 14 15 16
Card Sort: Matching Distributions
D
0 1 2 3 4 5 6 7 8
1 3 5 7 9 11 13 15 17 19 21 23 25 27

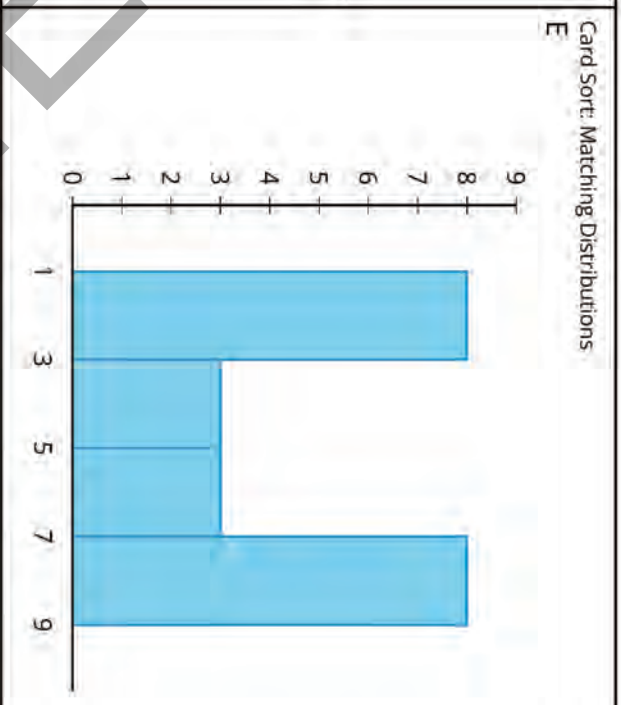
Card Sort: Matching Distributions

5



Card Sort: Matching Distributions

E



Card Sort: Matching Distributions

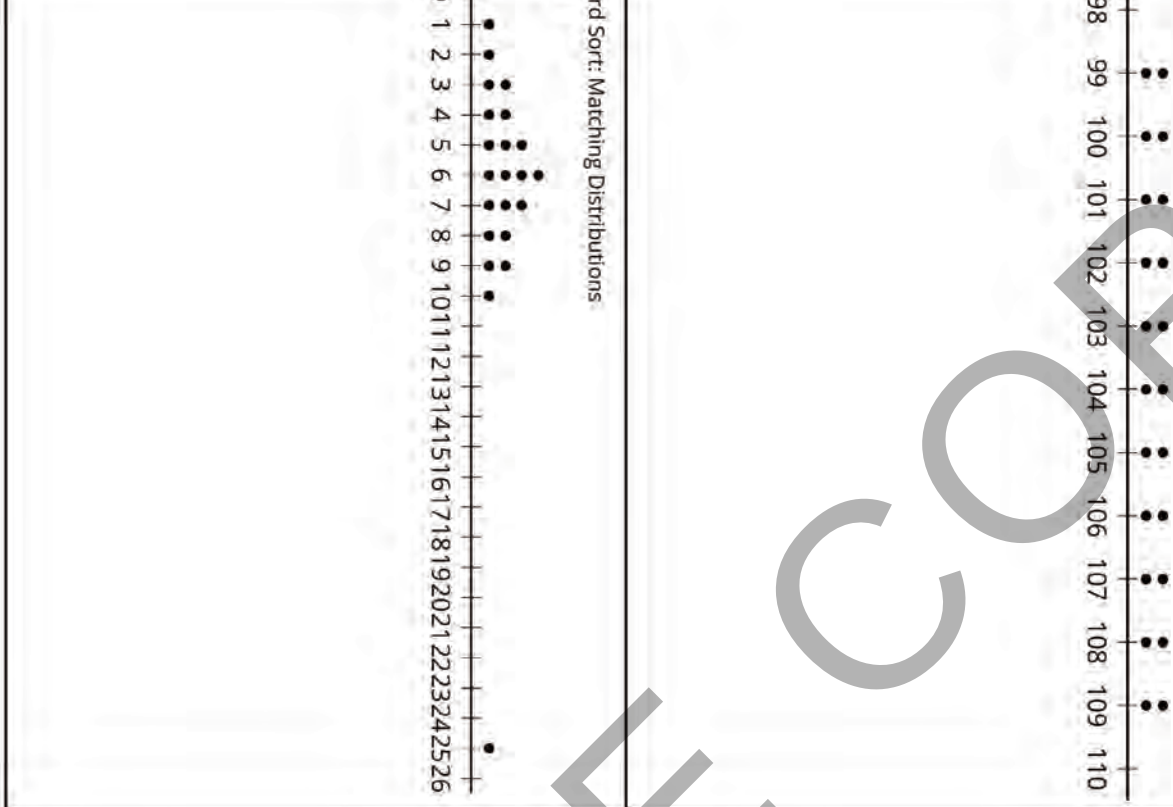
6

Card Sort: Matching Distributions

F

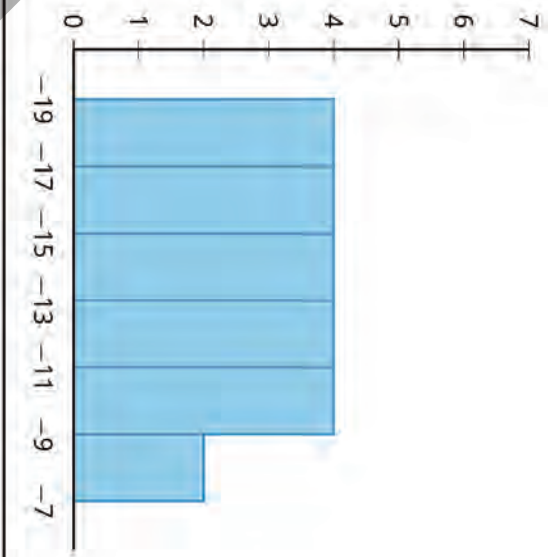
Card Sort: Matching Distributions

7



Card Sort: Matching Distributions

G



Card Sort: Matching Distributions

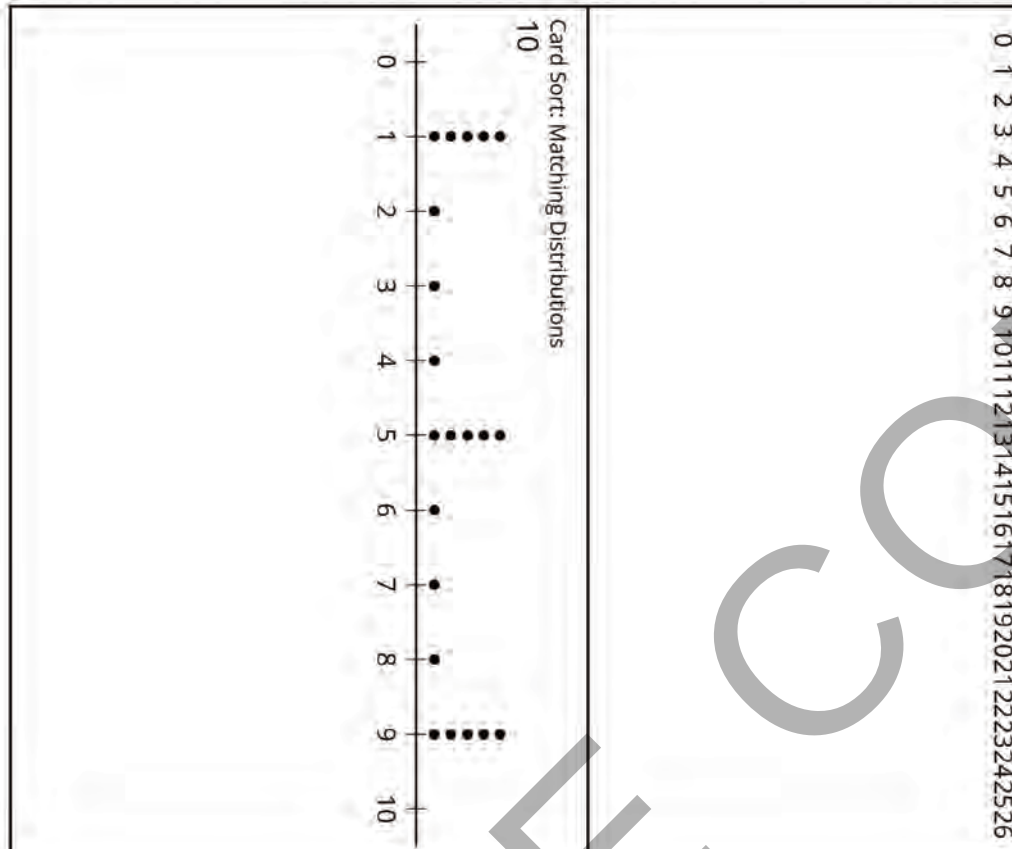
8

Card Sort: Matching Distributions

H

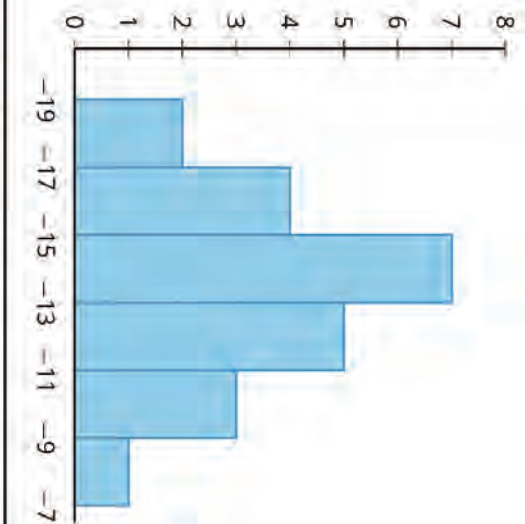
Card Sort: Matching Distributions

9



Card Sort: Matching Distributions

I



Card Sort: Matching Distributions

10

Card Sort: Matching Distributions

J

This graphic organizer might help you determine which data values are useful for determining each of the statistics.

data values from least to greatest								
median (the middle value or the average of the two middle values)								
values of the first half of the data								
Q1 (the median of the first half of the data)								
values of the second half of the data								
Q3 (the median of the second half of the data)								

This graphic organizer might help you determine which data values are useful for determining each of the statistics.

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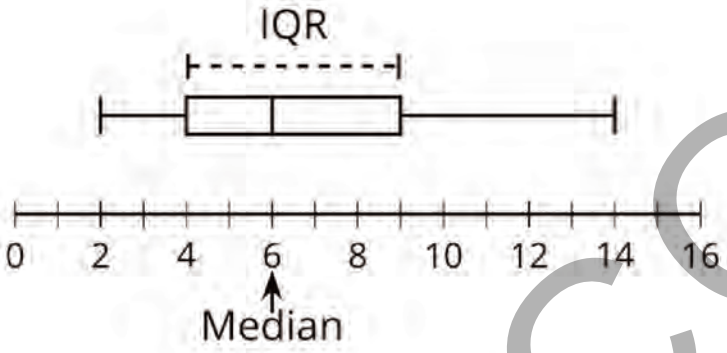
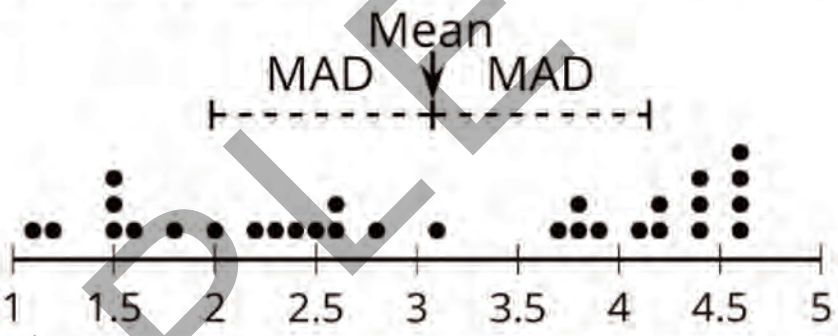
values of the first half of the data								
Q1 (the median of the first half of the data)								
values of the second half of the data								
Q3 (the median of the second half of the data)								

Algebra 1 Unit 1 Useful Terms and Displays

Median: A measure of center that divides the data so that the number of values less than or equal to the median is the same as the number of values that are greater than or equal to the median. Medians are easiest to see in a box plot.



Mean: Also called the average, it is the value you get by adding up all of the values in the set and dividing by the number of values in the set.

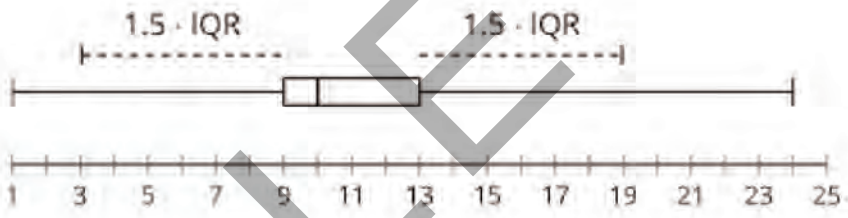


Interquartile range (IQR): A measure of variability determined by the range of values for the middle half of the data. Often used with median, this value can be determined by subtracting Q1 – Q3. In the box plot shown here, the IQR is 5 (because 9 – 4 = 5).

Mean absolute deviation (MAD): A measure of variability determined by the mean of the distances of the data points from the mean of the distribution. Often used with mean, this value is related to how widely the data are spread.

Standard deviation: A measure of the variability, or spread, of a distribution, calculated by a method similar to the method for calculating the MAD (mean absolute deviation). The exact method is studied in more advanced courses.

Outlier: A data value that is unusual in that it differs quite a bit from the other values in the data set. In the box plot shown, the minimum, 1, and the maximum, 24, are both outliers because they are more than 1.5 times the interquartile range away from the nearest quartile.



Card Sort: Describing Data Distributions

A

Card Sort: Describing Data Distributions

H

- skewed right
- IQR: 11

Card Sort: Describing Data Distributions

B

Card Sort: Describing Data Distributions

I

- symmetric
- mean: 6

Card Sort: Describing Data Distributions

C

Card Sort: Describing Data Distributions

J

- skewed left
- median: 14.5

Card Sort: Describing Data Distributions

D

Card Sort: Describing Data Distributions

K

- uniform
- median: -14

Card Sort: Describing Data Distributions
E

Card Sort: Describing Data Distributions
L

- mean: -14
- MAD: 2

Card Sort: Describing Data Distributions
F

Card Sort: Describing Data Distributions
M

- skewed right
- median: 11

Card Sort: Describing Data Distributions

G

Card Sort: Describing Data Distributions

N

- mean: -14
- MAD: 5.18

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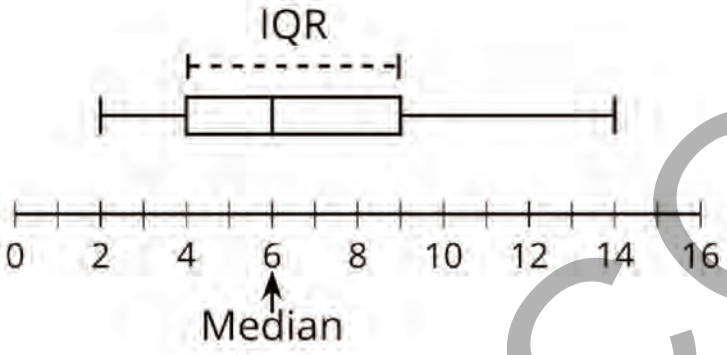

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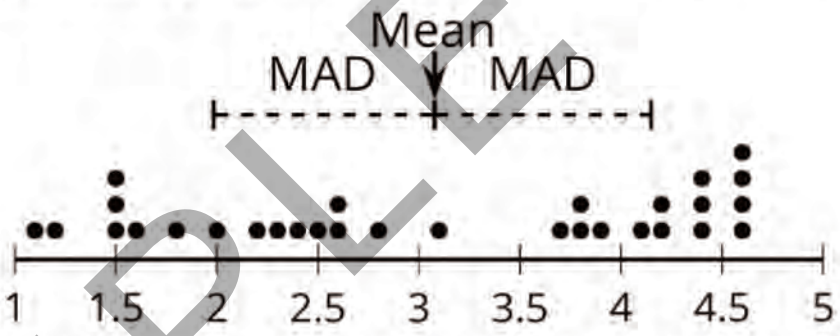

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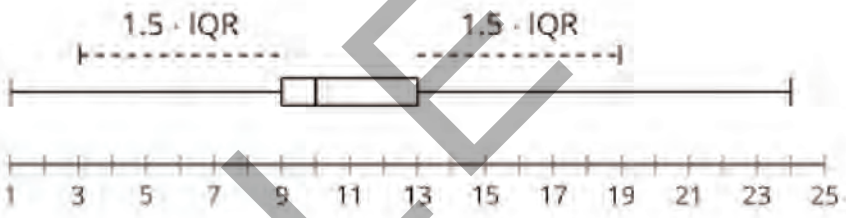


Problem Card 1

Masses for two different populations of African elephants at different locations are recorded.

a. Which of the populations has a heavier typical mass? Explain your reasoning.
b. Which of the populations has greater variability in masses? Explain your reasoning.

Data Card 1

Population A

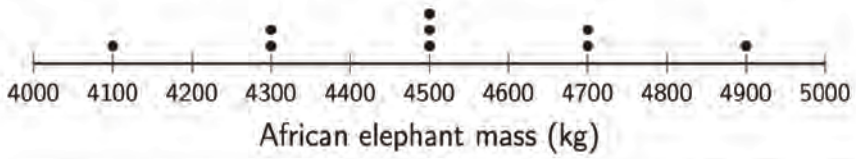
- Mean: 4,872 kilograms
- Median: 4,948 kilograms
- Standard deviation: 550 kilograms
- Interquartile range: 972 kilograms
- The distribution is symmetric

Population B

- Mean: 4,743 kilograms
- Median: 4,761 kilograms
- Standard deviation: 626 kilograms
- Interquartile range: 904 kilograms
- The distribution is symmetric

Problem Card 2

Scientists compared masses for a sample of African elephants to the masses for a sample of Asian elephants.



Although the comparative analysis can be found, the dot plot and the data have been lost for the Asian elephants. Draw a possible dot plot for the Asian elephants that fits the comparison.

Data Card 2

- The mean mass for the African elephants is 4,500 kilograms.
- The standard deviation for the mass of African elephants is 245 kilograms.
- The mean mass for the Asian elephants is 2,000 kilograms less than the mean mass for the African elephants.
- The standard deviation for the Asian elephants is less than the standard deviation for the African elephants.
- The shape of the distributions for both types of elephants is the same.
- The samples each included 9 individual elephants.

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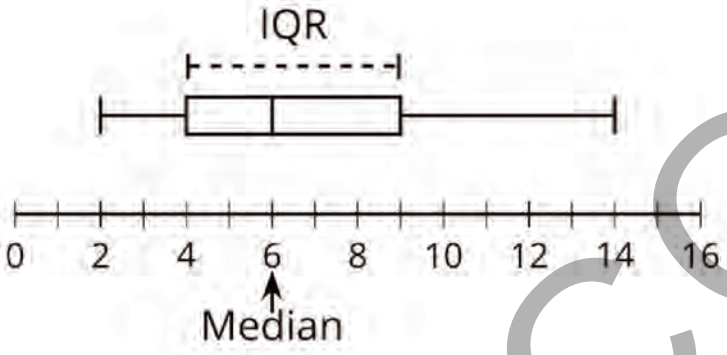

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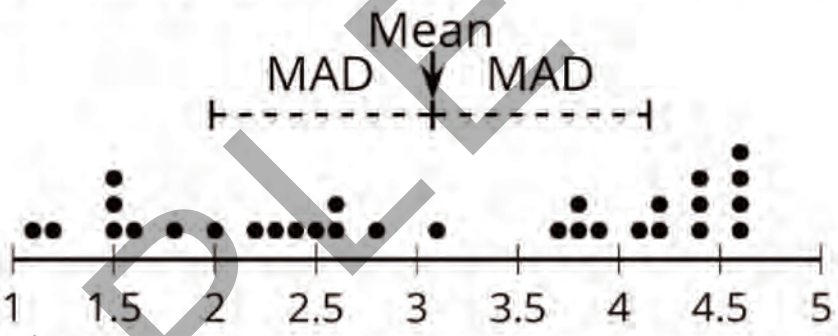

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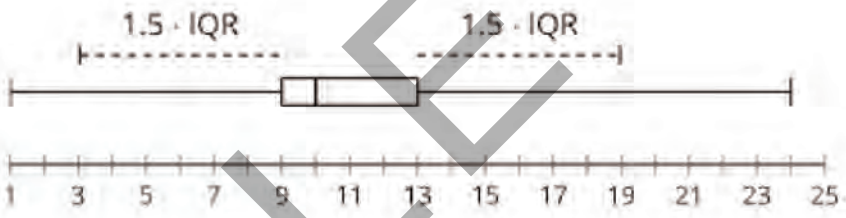

handedness	height (cm)	foot length (cm)	arm span (cm)
Left-Handed	173	25	170
Left-Handed	134	65	136
Left-Handed	165	21	168
Left-Handed	180	27	181
Left-Handed	156	23.5	158
Left-Handed	179	25	179
Left-Handed	175	25	170
Left-Handed	189	27	192
Left-Handed	165	21.3	176.8
Left-Handed	157.5	21.5	162.6
Left-Handed	152	21	140
Left-Handed	162	24	177
Left-Handed	61	24	147
Left-Handed	173	25.4	162.5
Left-Handed	188	28	191
Left-Handed	164	25.4	96
Left-Handed	178	23	183
Left-Handed	173.6	24	179.4
Left-Handed	173	24	184
Left-Handed	157	24	37
Left-Handed	181	25	170
Left-Handed	198	29	183
Left-Handed	152.4	21.3	133
Left-Handed	175	19	172
Left-Handed	160	25	120

handedness	height (cm)	foot length (cm)	arm span (cm)
Right-Handed	172.2	26.6	172.2
Right-Handed	180	27	168
Right-Handed	184	28	183
Right-Handed	165	26	150
Right-Handed	171	26	175
Right-Handed	23	22	150
Right-Handed	75	32	92
Right-Handed	179	29	171
Right-Handed	174	28	194
Right-Handed	154	22	149
Right-Handed	165.1	28	171
Right-Handed	61	12	30
Right-Handed	177	25.4	180
Right-Handed	167	26	171
Right-Handed	172	27	178
Right-Handed	163	27	165
Right-Handed	162	22	154
Right-Handed	170	25.7	67
Right-Handed	184	26	176
Right-Handed	166	24	158
Right-Handed	171	27	184
Right-Handed	152	24	159
Right-Handed	60	25.5	143
Right-Handed	177	27.5	178
Right-Handed	174	45	87.5
Right-Handed	150	21	152
Right-Handed	157	21.5	161
Right-Handed	183	28	75
Right-Handed	152.8	22	152.8
Right-Handed	160	23	163
Right-Handed	171	24	170
Right-Handed	153.5	22	154
Right-Handed	176	25	178
Right-Handed	170	23	162
Right-Handed	165	25	171
Right-Handed	162.5	22.8	168.9
Right-Handed	183	26	185
Right-Handed	182.8	27.94	187.9
Right-Handed	188	28	189
Right-Handed	159	25	162
Right-Handed	180	26	165
Right-Handed	180	27	200
Right-Handed	10	1	3
Right-Handed	155	23	145
Right-Handed	153	22	154
Right-Handed	164	22	62.5
Right-Handed	74	24	181
Right-Handed	156.5	22.5	65

ALGEBRA 1

UNIT

2

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

What Comes Next?

Start here

$$\begin{cases} \frac{4}{5}x + 6y = 15 \\ -x + 18y = 11 \end{cases}$$

What Comes Next?

$$\begin{cases} 4x + 30y = 75 \\ -4x + 72y = 44 \end{cases}$$

What Comes Next?

$$\begin{cases} 4x + 30y = 75 \\ y = \frac{7}{6} \end{cases}$$

What Comes Next?

$$\begin{cases} x = 10 \\ y = \frac{7}{6} \end{cases}$$

What Comes Next?

$$\begin{cases} 4x = 40 \\ y = \frac{7}{6} \end{cases}$$

What Comes Next?

$$\begin{cases} 4x + 30y = 75 \\ 102y = 119 \end{cases}$$

What Comes Next?

$$\begin{cases} 4x + 30y = 75 \\ -x + 18y = 11 \end{cases}$$

What Comes Next?

$$\begin{cases} 4x + 35 = 75 \\ y = \frac{7}{6} \end{cases}$$

Sorting Systems
Card 1

$$\begin{cases} y = 2x - 7 \\ y = -7x + 2 \end{cases}$$

Sorting Systems
Card 2

$$\begin{cases} y = 2x - 3 \\ y = 2x - 13 \end{cases}$$

Sorting Systems
Card 3

$$\begin{cases} y = -\frac{1}{3}x - 3 \\ 3y = -9 - x \end{cases}$$

Sorting Systems
Card 4

$$\begin{cases} 3x + y = -10 \\ 3y = -x - 10 \end{cases}$$

Sorting Systems
Card 5

$$\begin{cases} x - 4y = -12 \\ 5x = 20y + 60 \end{cases}$$

Sorting Systems
Card 6

$$\begin{cases} x - y = -6 \\ x - 4y = 12 \end{cases}$$

Sorting Systems
Card 7

$$\begin{cases} x = 4y - 4 \\ 4x - 16y = -16 \end{cases}$$

Sorting Systems
Card 8

$$\begin{cases} y + \frac{1}{5} = -\frac{2}{5}x \\ 5y = -2x - 1 \end{cases}$$

Sorting Systems
Card 9

$$\begin{cases} y = 2x - 3 \\ y = 4x - 6 \end{cases}$$

This page includes an additional set of info gap cards to use as an optional demonstration.

Cards for the student activity are located on the following page.

Info Gap: Linear Systems
Problem Card 0

$$\begin{cases} y = -3x + 2 \\ ax + by = 1 \end{cases}$$

What are the values of a and b?

Info Gap: Linear Systems
Data Card 0

- The point (0,2) is a solution.
- The second equation has a slope of -3.
- The point (1,-1) is a solution.
- $0 < b < 1$
- There are infinitely many solutions.

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Info Gap: Linear Systems

Problem Card 1

The first equation in the system has a slope of 3.

How many solutions does the system have? If there is 1 solution, find it. Explain your reasoning.

Info Gap: Linear Systems

Data Card 1

- The slope of the second equation is 3.
- The point (1, -3) is on the first line.
- The point (2, 13) is on the second line.
- The y-intercept of the second equation has a y value of 7.
- An intercept for the first equation has an x value of 2.

Info Gap: Linear Systems

Problem Card 2

The solution to a system of equations is (4,3).

What are the two linear equations in the system? Write one equation in standard form ($Ax + By = C$) and the other equation in slope-intercept form ($y = mx + b$).

Info Gap: Linear Systems

Data Card 2

- The first equation has an intercept at (0,-5).
- The second equation has intercepts at (0,6) and (8,0).
- The second equation has a slope of $\frac{-3}{4}$.

Info Gap: Linear Systems

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ALGEBRA 1

UNIT

3

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

Info Gap: Running to the Dentist

Problem Card 1

Jada usually runs a 5 kilometer distance in around 25 minutes. She wonders if listening to music helps her run the distance in under 25 minutes. Complete the two-way table using information for her runs during March.

	under 25 minutes	25 minutes or more	total
headphones on		4	
headphones off			
total			28

1. How many of her runs took less than 25 minutes?
2. Among the runs that took under 25 minutes, what fraction of them were completed without headphones on?

Info Gap: Running to the Dentist

Data Card 1

- Jada ran with headphones on 10 times.
- 10 of Jada's runs that took 25 minutes or longer were completed without headphones on.
- Half of Jada's runs took 25 minutes or more.

Info Gap: Running to the Dentist

Problem Card 2

Complete the two-way table about the dental hygiene habits of 100 people.

	floss	don't floss	total
use mouthwash			
no mouthwash			
total			100

1. Among the people who do not use mouthwash, how many more do not use floss than do?
2. What percentage of the people responded that they use mouthwash, but do not floss?

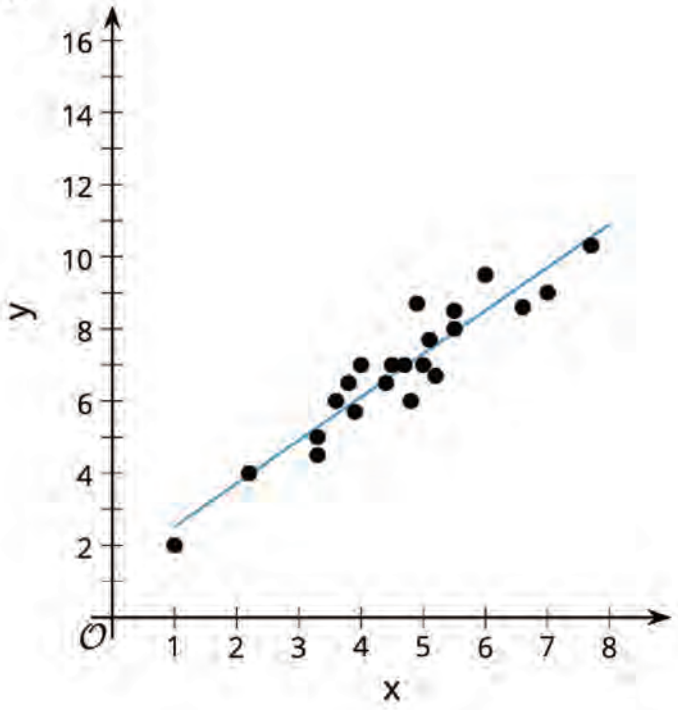
Info Gap: Running to the Dentist

Data Card 2

- 40 people responded that they use mouthwash.
- Of the people who use mouthwash, 30 people use floss.
- 55 people responded that they do not floss.
- 45 people responded that they don't floss and don't use mouthwash.

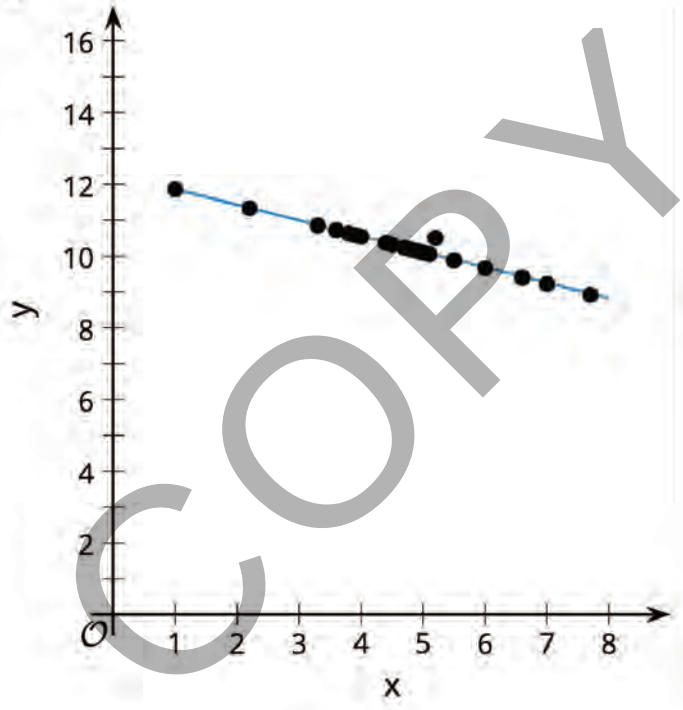
Card Sort: Data Patterns

A



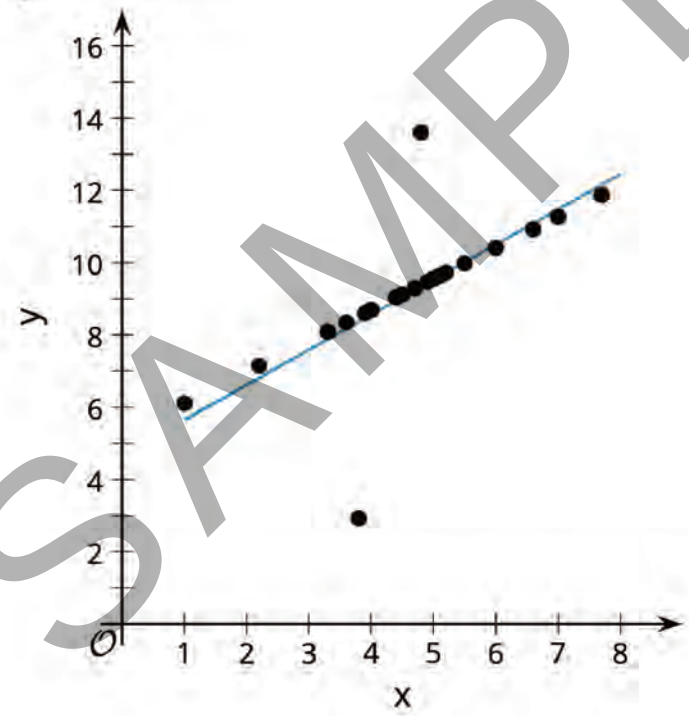
Card Sort: Data Patterns

B



Card Sort: Data Patterns

C



Card Sort: Data Patterns

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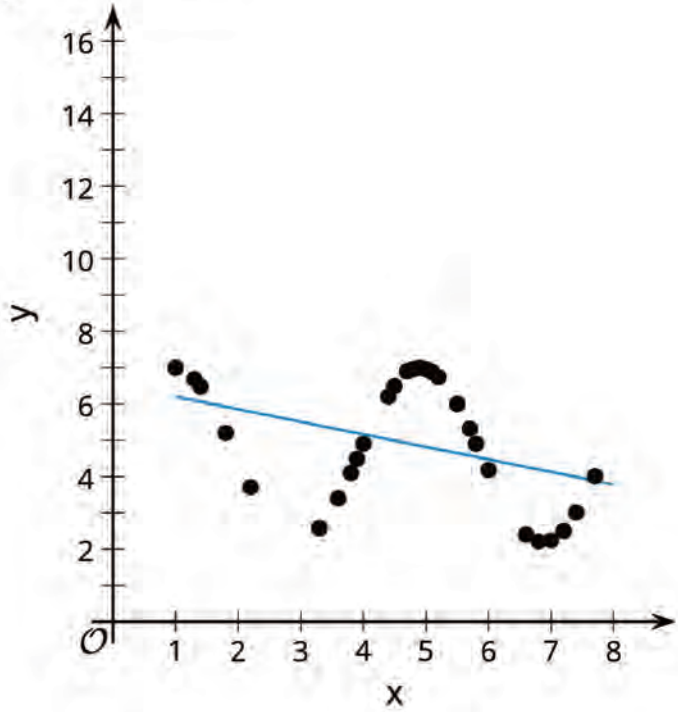

Card Sort: Data Patterns

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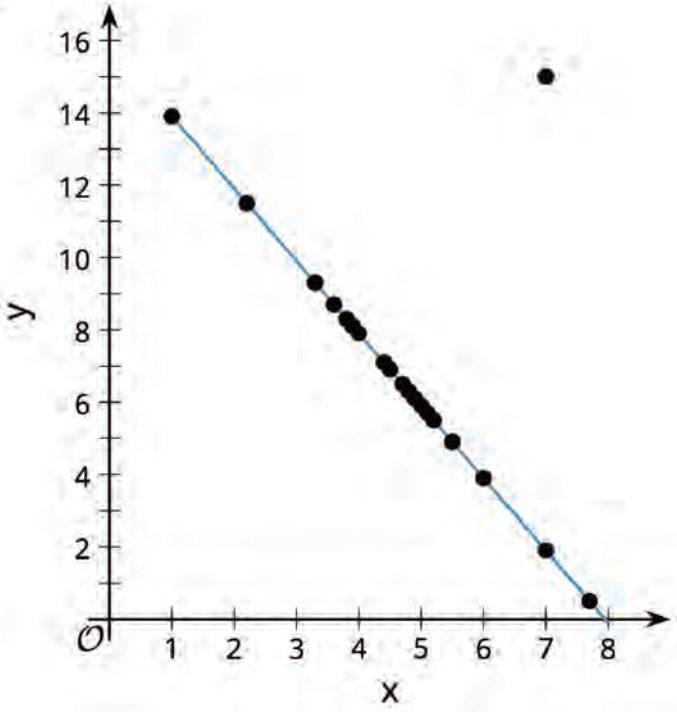

Card Sort: Data Patterns

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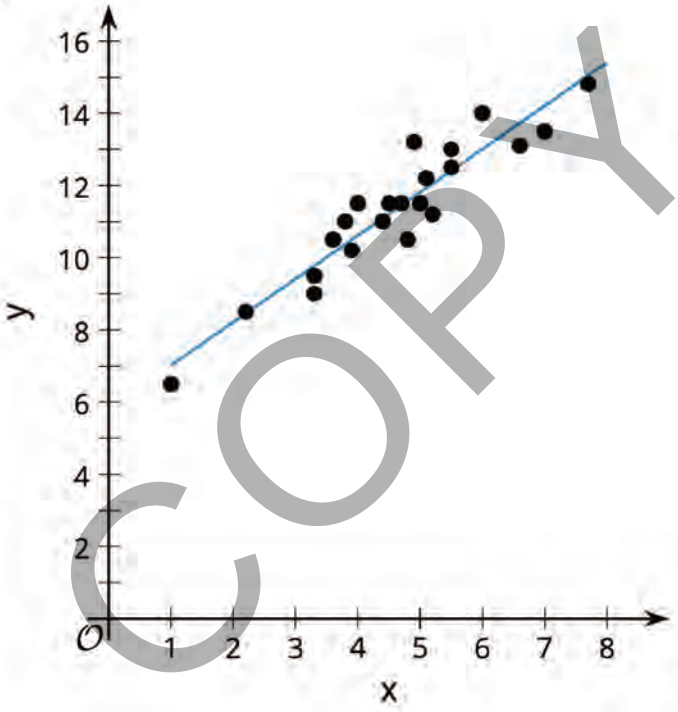
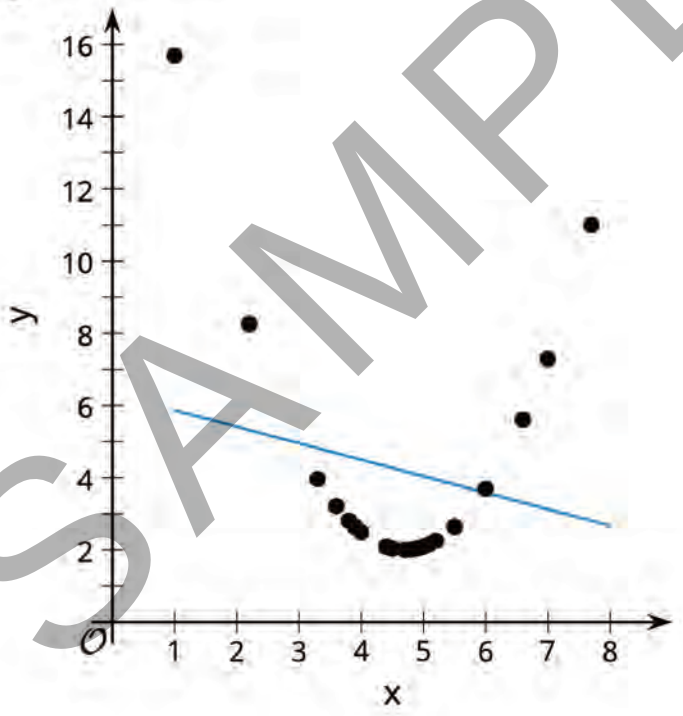


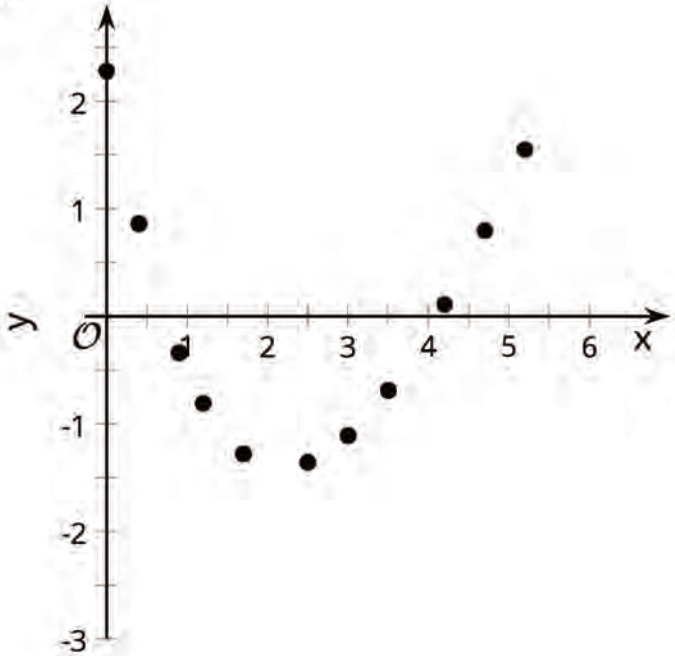
Card Sort: Data Patterns

G



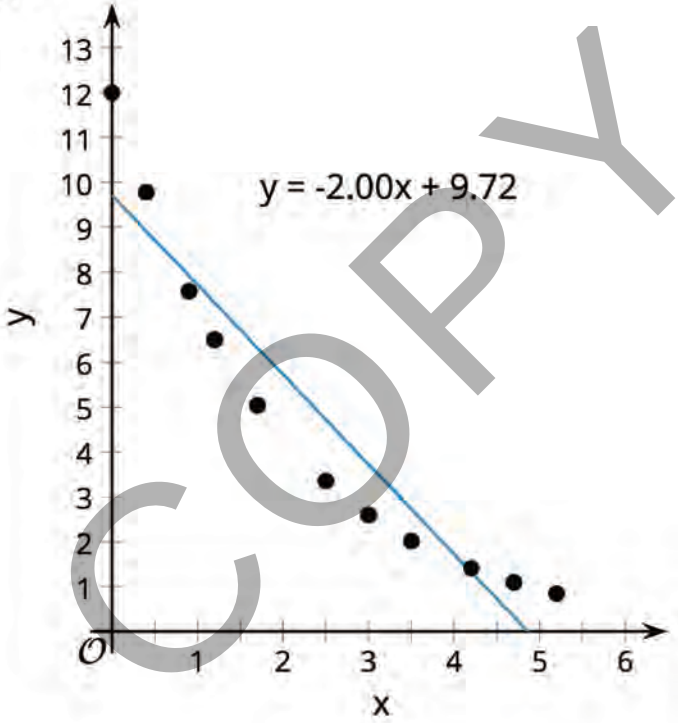
Best Residuals

K



Best Residuals

A



Best Residuals

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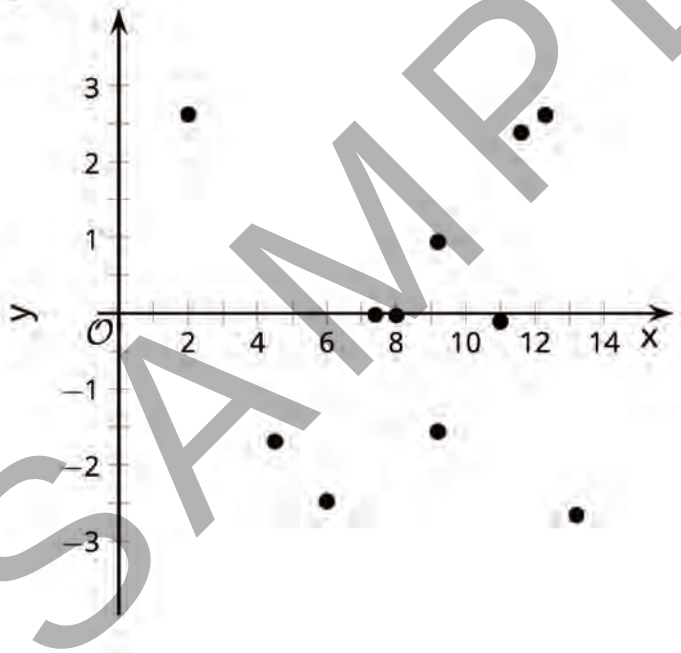

Best Residuals

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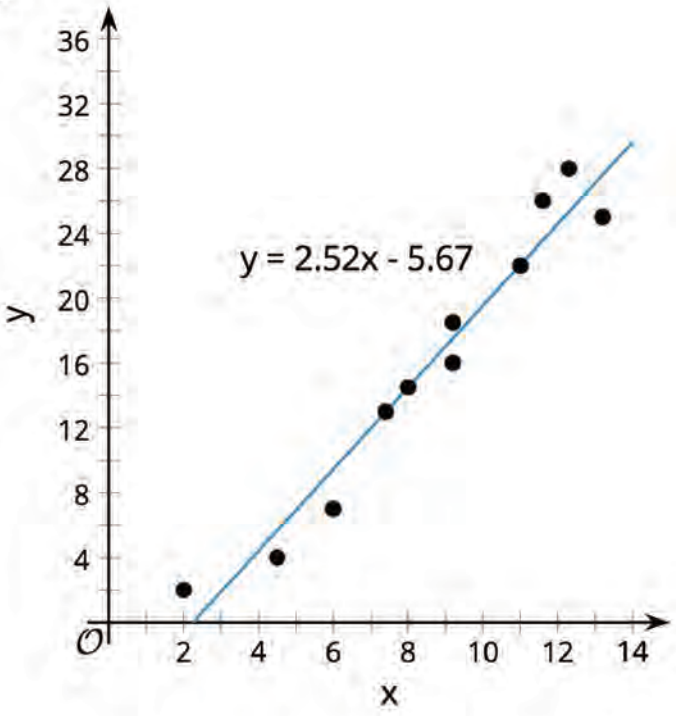
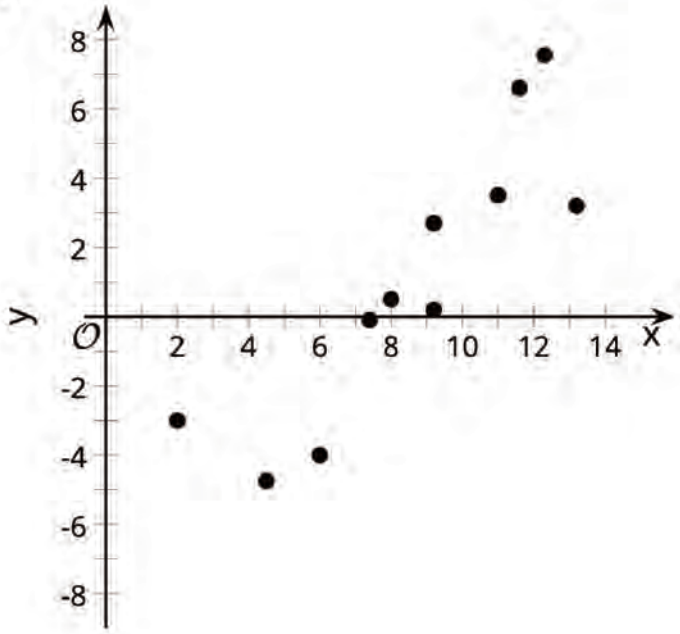


Best Residuals

L



Best Residuals

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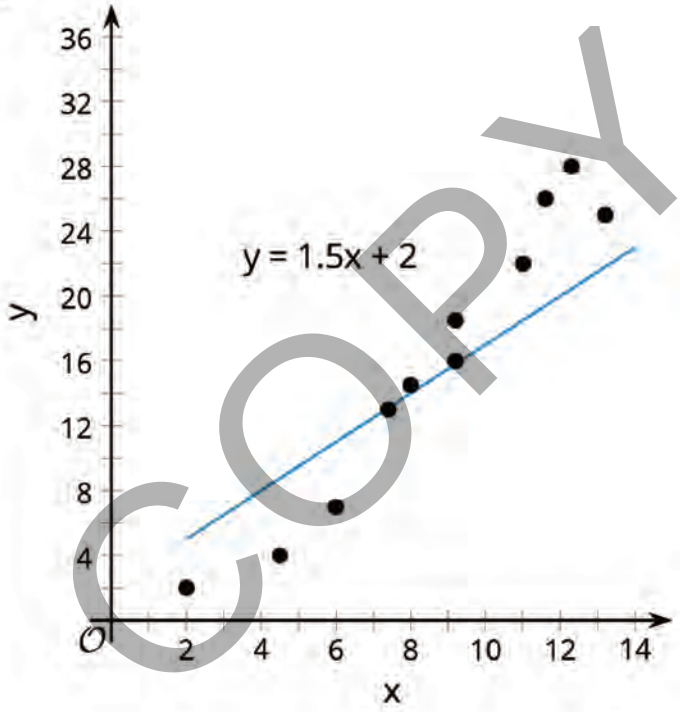
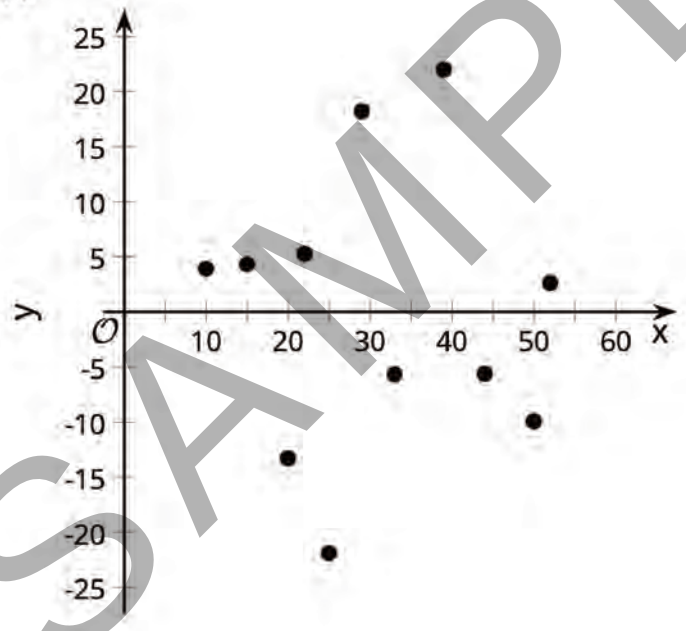


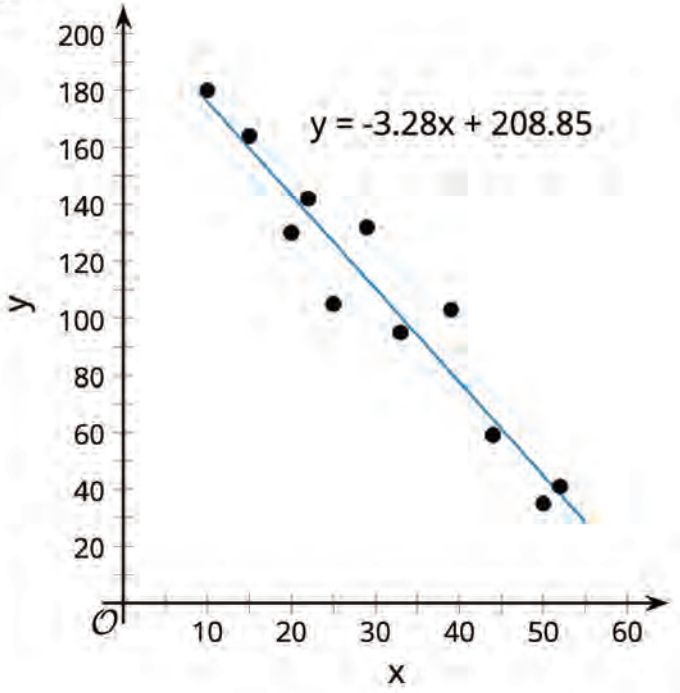
Best Residuals

H



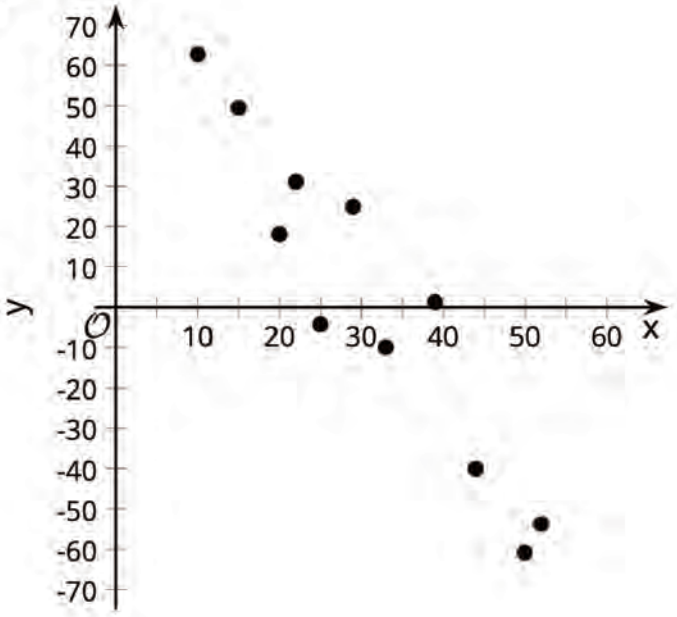
Best Residuals

D



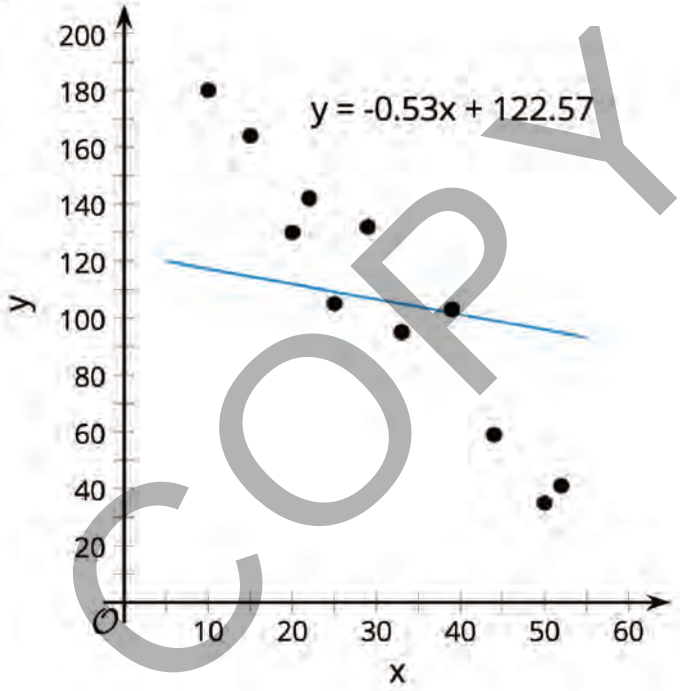
Best Residuals

J



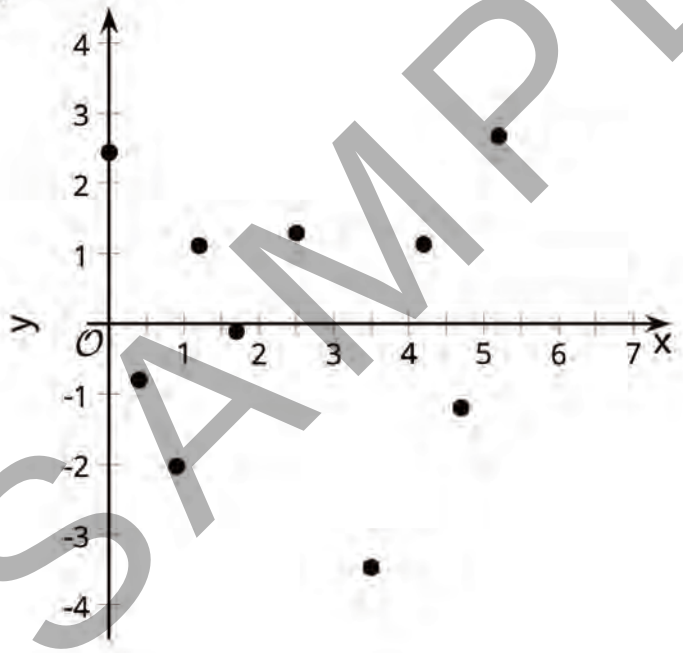
Best Residuals

E



Best Residuals

I



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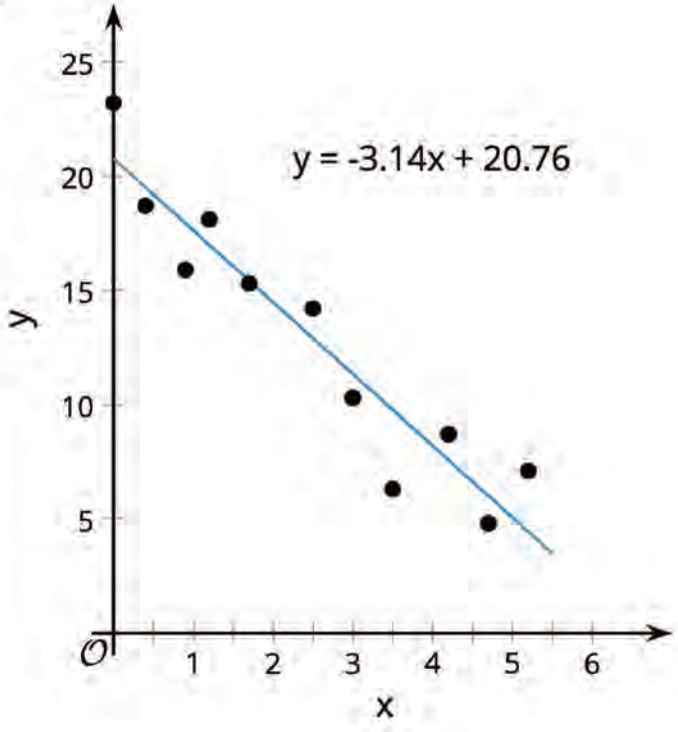

Card Sort: Scatter Plot Fit

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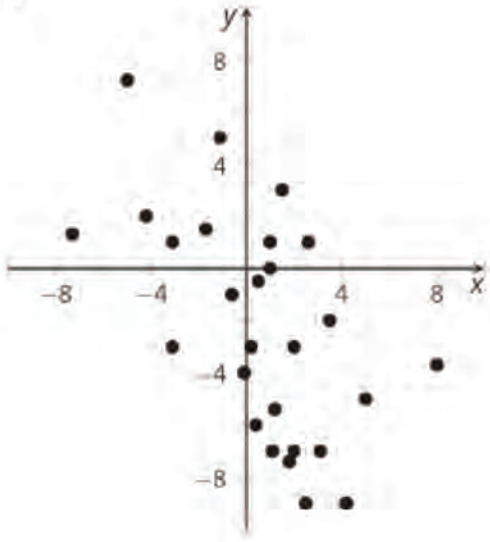

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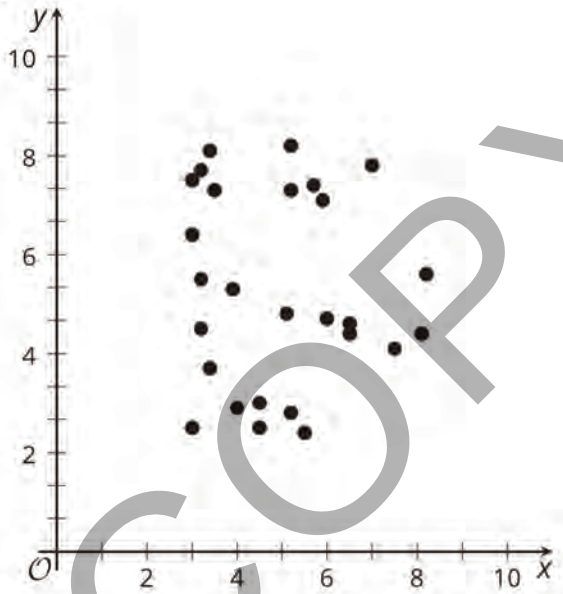

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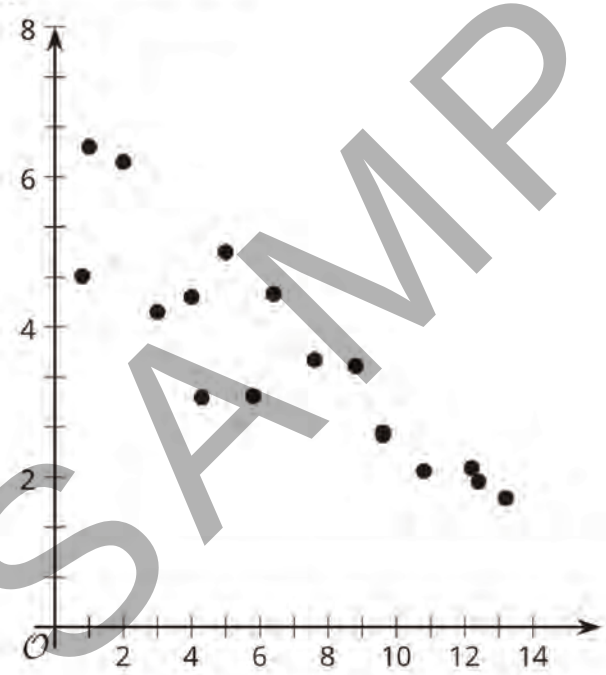

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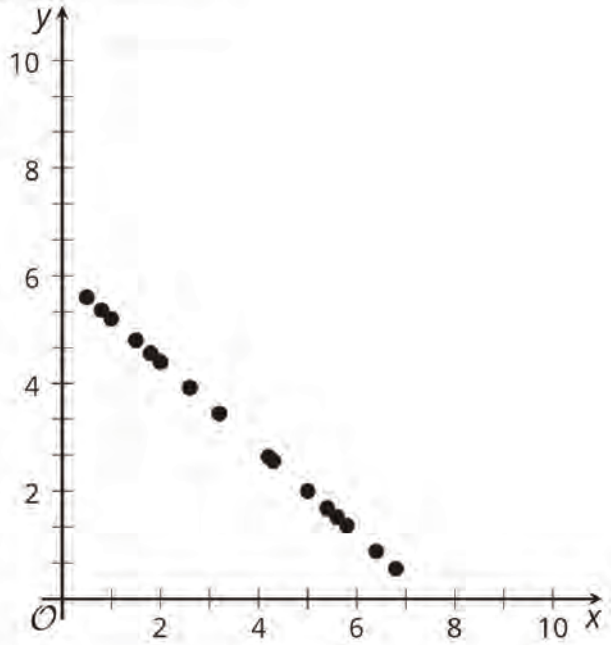

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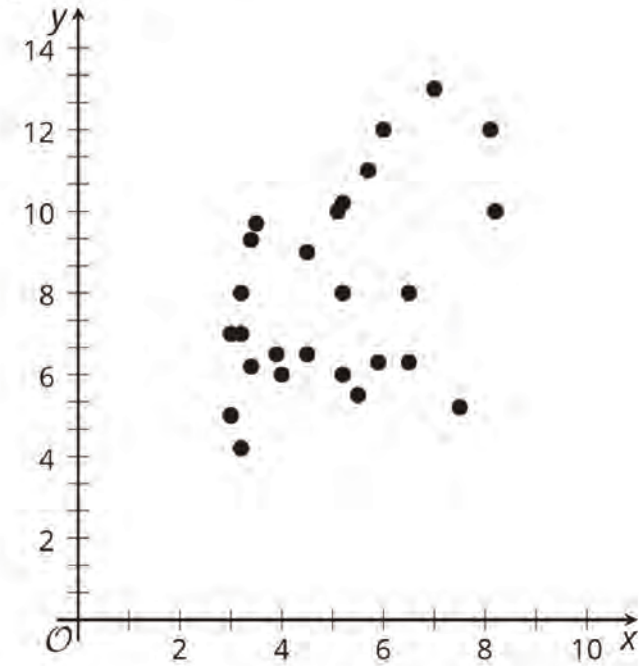

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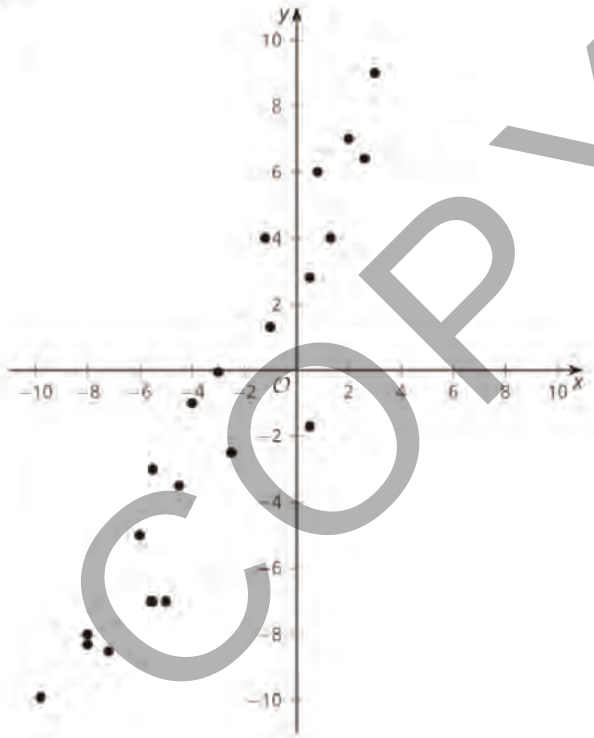

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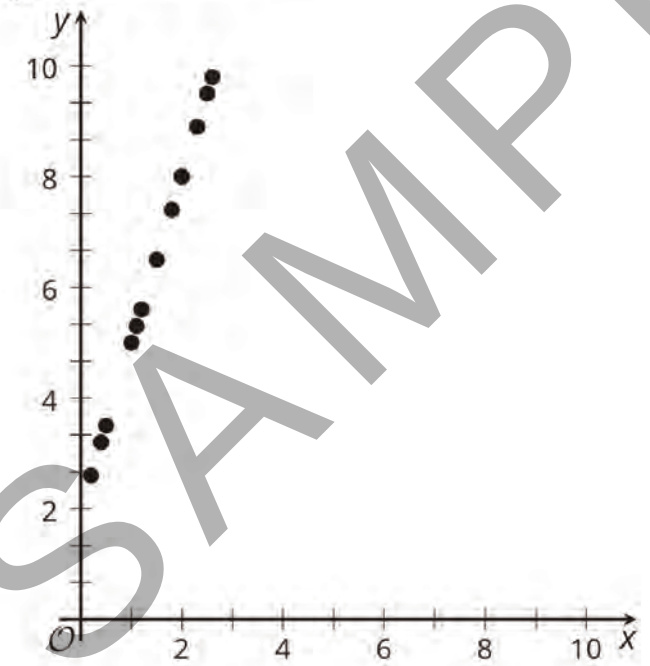

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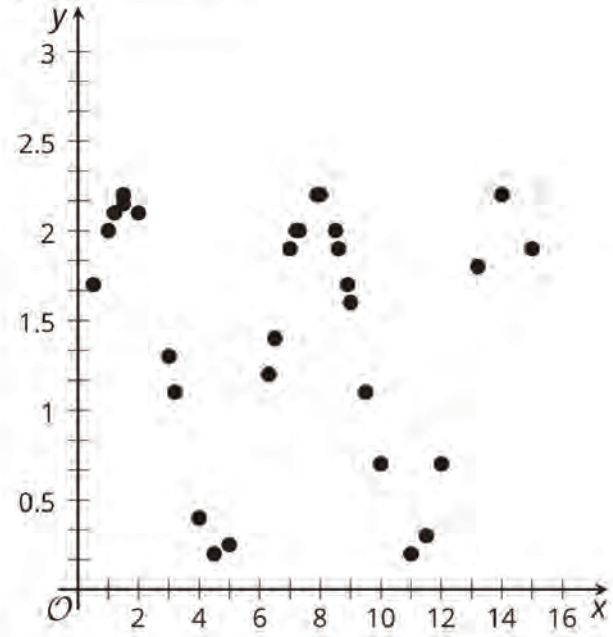

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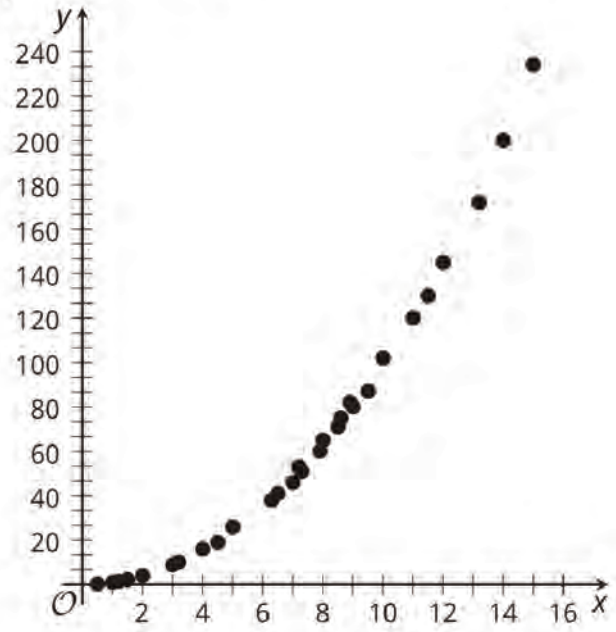

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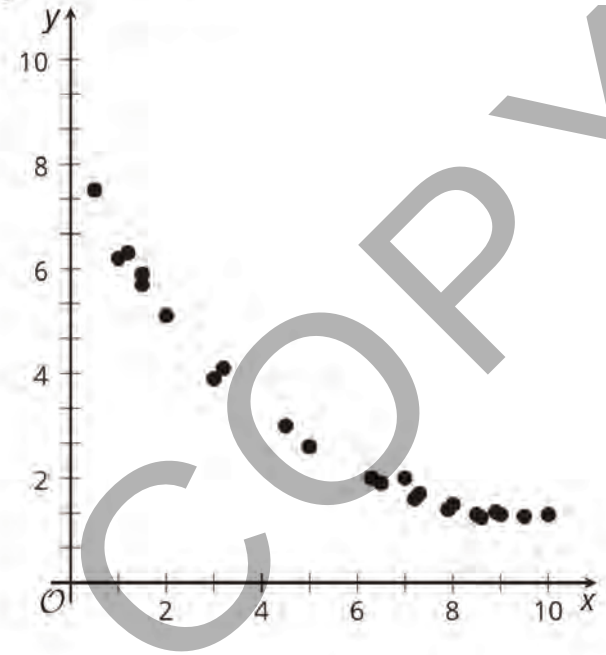

penalty minutes per game	wins
11.7	37
11.2	48
11.1	35
10.5	38
10.4	37
10	42
9.7	45
9.5	41
9.4	40
9.3	40
9.1	50
8.9	27
8.9	25
8.7	37
8.6	26
8.5	23
8.5	37
8.4	44
8.1	26
8	32
8	39
7.9	24
7.9	30
7.7	41
7.6	43
7	41
6.8	47
6.2	31

flags	wins
181	9
161	6
141	13
144	10
146	10
148	4
144	6
148	11
140	5
128	5
127	6
139	5
141	11
133	8
125	1
124	7
130	10
131	9
126	13
122	13
119	9
122	5
122	9
131	9
117	13
112	9
118	7