Student Name : _____

Number of Questions: **28**

Instructor Name : **Mr. Skelton**

Question 1 of 28

Solve for m.
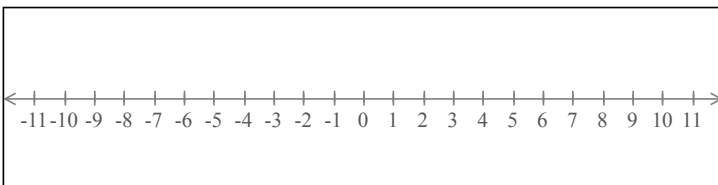
$$n = m - 12$$

Question 2 of 28

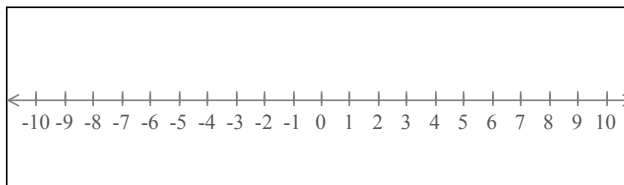Solve for x.

$$y = 4(x + a)$$

Question 3 of 28

Graph the inequality below on the number line.

$$x < 7$$

Question 4 of 28

Graph the compound inequality on the number line.
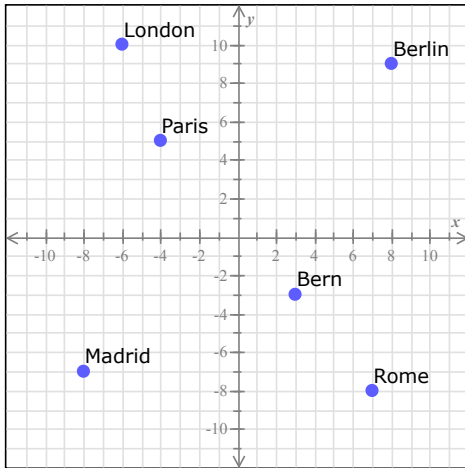
$$x \geq 1 \text{ and } x \leq 8$$

Question 5 of 28

Solve for u.

$$8(u + 2) = -2u + 46$$

Simplify your answer as much as possible.

Give the location of Rome as an ordered pair (x, y).

Fill in the blanks below.

Find the slope of the line passing through the points $(-7, 9)$ and $(-7, 5)$.

slope: _____

Find the slope of the line passing through the points $(-7, -7)$ and $(6, -7)$.

slope: _____

Find the y-intercept and the slope of the line.

$$-4x+y=-3$$

Write your answers in simplest form.

Find an ordered pair $(x, \ y)$ that is a solution to the equation.

$$4x-y=4$$

Donna purchased a prepaid phone card for $30.00. Calls cost 10 cents a minute using this card. The credit, C (in dollars), left on the card after it is used for x minutes of calls is given by the following.
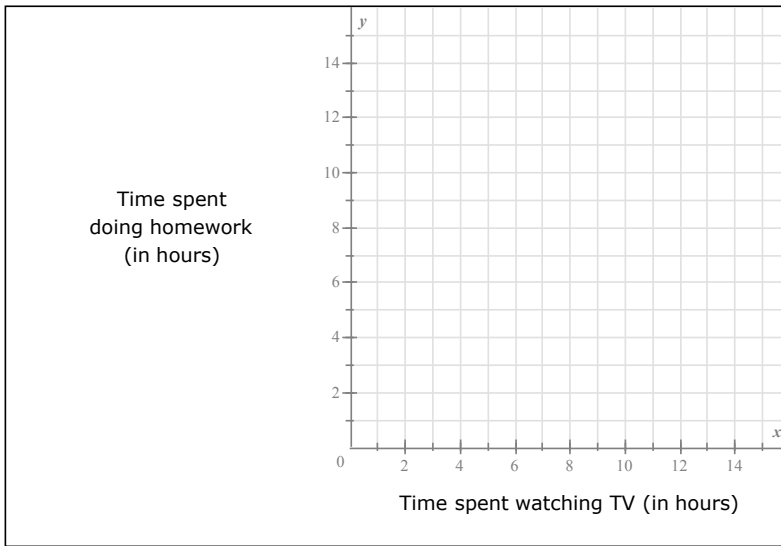
$$C=30.00-0.10x$$

How much credit is left on the card after Donna uses it for 15 minutes of calls?

The table below shows the time spent watching TV and the time spent doing homework for each of 6 students.

Create a scatter plot for the data.

| Time spent watching TV (in hours)	Time spent doing homework (in hours)
1	13
3	10
6	8
8	5
9	3
10	2

Question 12 of 28

Bivariate data for the quantitative variables x and y are given in the table below. These data are plotted in the scatter plot shown next to the table.

In the scatter plot, sketch an approximation of the least-squares regression line for the data.

x	y
9.2	1.7
8.3	3.3
9.7	2.1
10.0	1.6
6.9	5.2
3.7	8.2
3.1	9.2
5.2	7.1
1.4	9.6
4.0	7.0
7.7	5.4
2.8	8.0
7.0	4.3
7.8	3.6
5.9	5.0
4.5	7.9
2.2	10.0
5.3	6.2
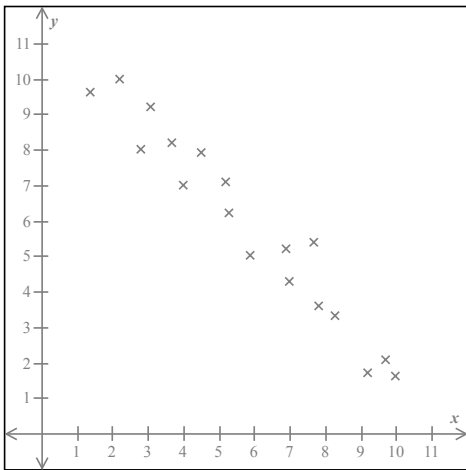
Question 13 of 28

The scatter plot shows the years of experience and the amount charged per hour by each of 25 dog sitters in Arizona. Also shown is the line of best fit for the data.

Fill in the blanks below.

Amount charged
(in dollars per hour)

Years of experience
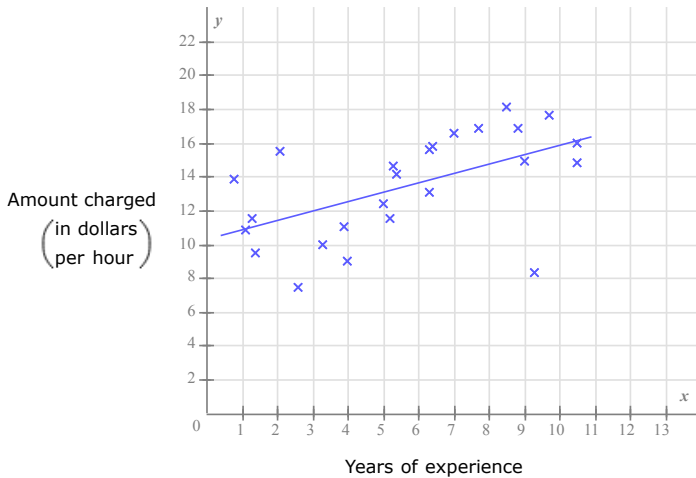
(a) For these 25 dog sitters, as experience increases, the amount charged tends to _____
<div align="right">(Blank 1)</div>

(b) For these 25 dog sitters, there is _____ correlation between experience and amount charged.
(Blank 2)

(c) Using the line of best fit, we would predict that a dog sitter with 9 years of experience would charge approximately

_____
(Blank 3)

Blank 1 Options

- increase.
- decrease.
- stay the same.

Blank 2 Options

- a positive
- a negative
- no

Blank 3 Options

- 15.3 dollars per hour.
- 15.7 dollars per hour.
- 16.1 dollars per hour.
- 16.5 dollars per hour.
- 16.9 dollars per hour.

Question 14 of 28

Below are four bivariate data sets and their scatter plots. (Note that all of the scatter plots are displayed with the same scale.) Each data set is made up of sample values drawn from a population.

x	y
1.0	6.5
2.0	9.5
3.0	3.8
4.0	9.1
5.0	5.3
6.0	2.1
7.0	5.8
8.0	10.0
9.0	5.2
10.0	8.0
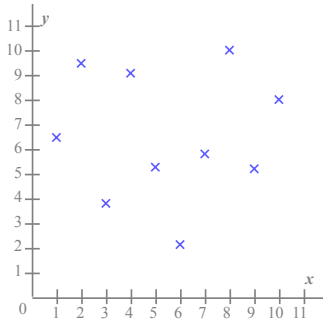
Figure 1

u	v
1.0	3.8
2.0	5.9
3.0	7.2
4.0	4.5
5.0	5.2
6.0	7.9
7.0	5.1
8.0	6.7
9.0	9.0
10.0	7.5
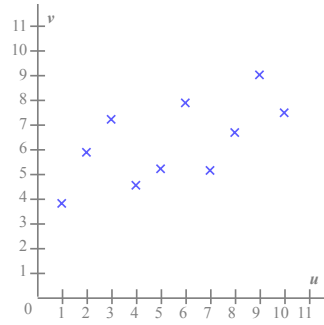
Figure 2

w	t
1.0	2.9
2.0	3.9
3.0	3.4
4.0	5.1
5.0	4.3
6.0	6.9
7.0	6.3
8.0	7.4
9.0	7.2
10.0	8.3
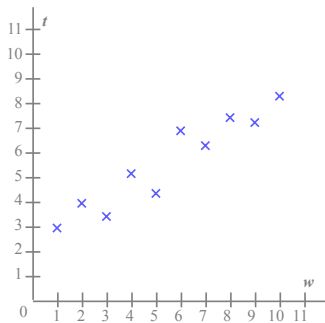
Figure 3

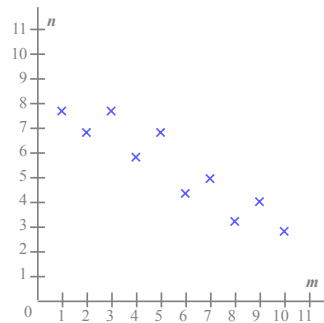| m	n
1.0	7.7
2.0	6.8
3.0	7.7
4.0	5.8
5.0	6.8
6.0	4.3
7.0	4.9
8.0	3.2
9.0	4.0
10.0	2.8

Figure 4

Answer the following questions about the relationships between pairs of variables and the values of r, the sample correlation coefficient. The same response may be the correct answer for more than one question.

(a) For which data set is the sample correlation coefficient r closest to 1?

- the x, y data set
- the u, v data set
- the w, t data set
- the m, n data set

(b) Which data set indicates the strongest negative linear relationship between its two variables?

- the x, y data set
- the u, v data set
- the w, t data set
- the m, n data set

(c) For which data set is the sample correlation coefficient r equal to -1?

- the x, y data set
- the u, v data set
- the w, t data set
- the m, n data set
- none of the data sets

(d) For which data set is the sample correlation coefficient r closest to 0?

- the x, y data set
- the u, v data set
- the w, t data set
- the m, n data set

Question 15 of 28

Shown below are the scatter plots for four data sets.
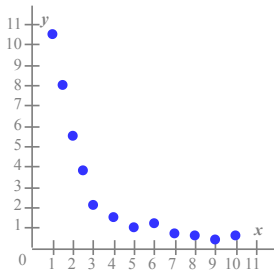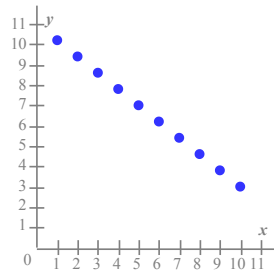Answer the questions that follow.
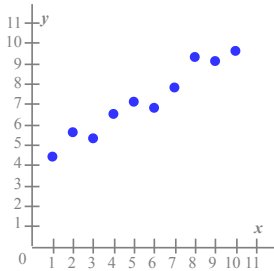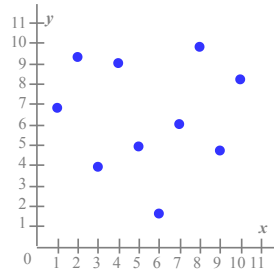

Figure 1

Figure 2

Figure 3

Figure 4

(a) Which data set appears to show a negative linear relationship between its two variables?

___ The data set in Figure 1
___ The data set in Figure 2
___ The data set in Figure 3
___ The data set in Figure 4

(b) Which data set appears to show a positive linear relationship between its two variables?

___ The data set in Figure 1
___ The data set in Figure 2
___ The data set in Figure 3
___ The data set in Figure 4

(c) Which data set appears to show no relationship between its two variables?

___ The data set in Figure 1
___ The data set in Figure 2
___ The data set in Figure 3
___ The data set in Figure 4

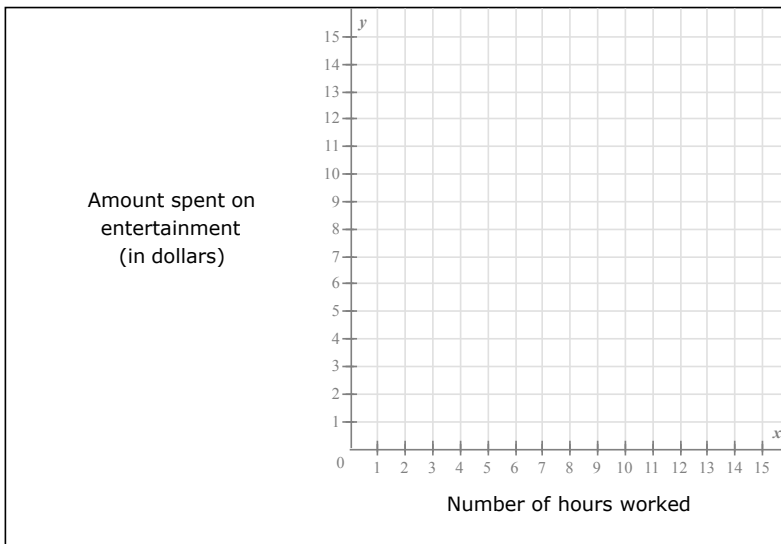(d) Which data set appears to show a nonlinear relationship between its two variables?

___ The data set in Figure 1
___ The data set in Figure 2
___ The data set in Figure 3
___ The data set in Figure 4

Question 16 of 28

The table below shows the number of hours worked and the amount of money spent on entertainment by each of 7 students.

Create a scatter plot for the data.

Number of hours worked	Amount spent on entertainment (in dollars)
3	5
5	4
7	8
8	12
11	11
12	10
14	13

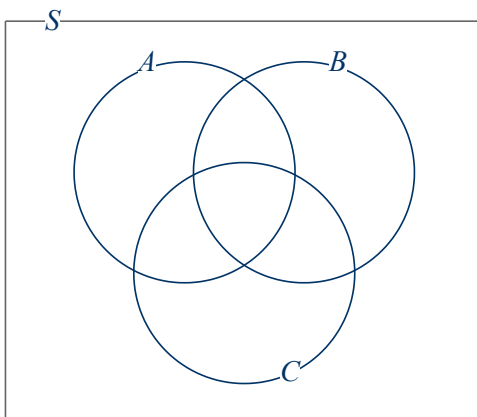Amount spent on entertainment (in dollars)

Number of hours worked

In the Venn diagram below, A, B, and C are events in the sample space S.
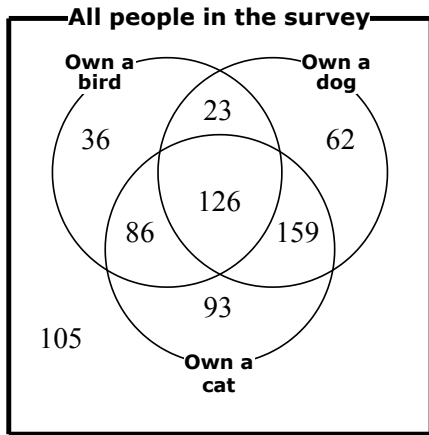
(Note: For any event X, we use $\overline{X}$ to denote "not X.")

Shade $A \cup \overline{B}$ on the Venn diagram.

A pet store surveyed 690 people to see how many own a bird, how many own a dog, and how many own a cat.

The Venn diagram below shows the results. (Each number gives the number of people who fall into that Venn diagram category.)

─All people in the survey─

Own a bird   Own a dog

23

36   62

126

86   159

93

105

Own a cat

(a) How many of the people own exactly two of the three types of animals?

_____ people

(b) How many of the people don't own a dog?

_____ people

(c) How many of the people own neither a cat nor a bird, but do own a dog?

_____ people

Question 19 of 28

Construct a Venn diagram illustrating the sets below.

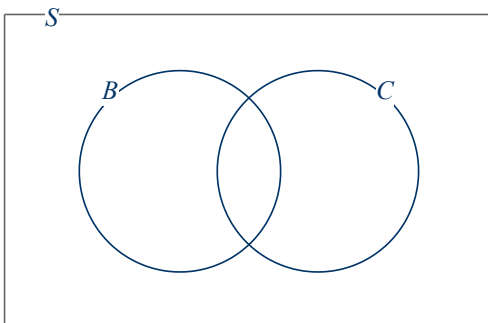$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
$W = \{2, 4, 5, 7, 9\}$
$X = \{2, 5, 6, 7, 8, 9\}$

Question 20 of 28

In the Venn Diagram below, B and C are events in the sample space S.
(Note: For any event X, we use $\overline{X}$ to denote "not X.")

Shade $\overline{B} \cup C$ on the Venn diagram.

─S─

B   C

Question 21 of 28

A pet store surveyed 217 people to gather information about the types of pets they own. The table below gives the results for two types of pets.

	Number of people
Own a bird but not a cat	107
Own a cat but not a bird	19
Own a bird or a cat (or both)	126

Construct a Venn diagram illustrating these results. Then answer the questions.

How many people own a bird?
_____ people
How many people own both a bird and a cat?
_____ people

Question 22 of 28

Here are the numbers of children in 13 elementary school classes.

17, 18, 20, 20, 18, 18, 19, 16, 19, 18, 17, 18, 17

Find the modes of this data set.

Question 23 of 28

Here are the weights (in pounds) of a sample of 13 male eleventh graders.

161, 151, 172, 149, 170, 140, 159, 170, 144, 146, 157, 152, 142

Find the median weight of these students.

Question 24 of 28

A pet store has 7 cats. Here are their weights (in pounds).

5, 9, 7, 11, 9, 10, 8

Find the mean weight of these cats.
If necessary, round your answer to the nearest tenth.
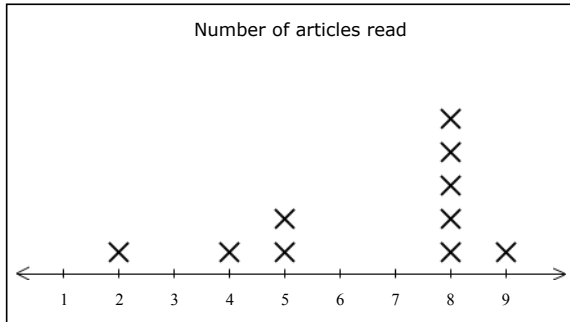
Question 25 of 28

In a recent survey, 8 college graduates were each asked for the number of hours they work each week. Here is a list of the responses.

44, 56, 39, 43, 55, 39, 40, 42

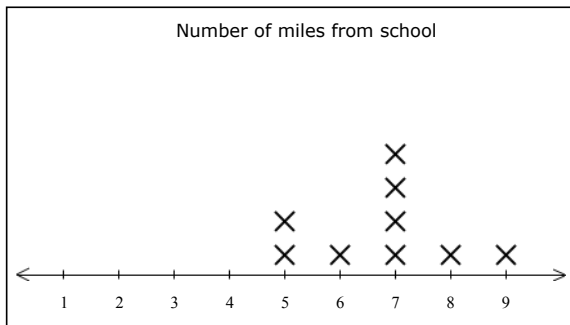Find the range of the data set.

Question 26 of 28

Each day, John records the number of news articles he reads. The line plot gives his numbers for the last ten days.

Number of articles read

Find the mode and the range for the data.

Question 27 of 28

Nine students were asked how many miles they live from school. The results are shown in the line plot below.

Number of miles from school

Find the range and the mode for the data.

Question 28 of 28

Ryan is recording the percentages he earned on each quiz in his math class. Here are his results for the last 7 quizzes.

74, 64, 90, 74, 92, 68, 71

Find the range of the data set.