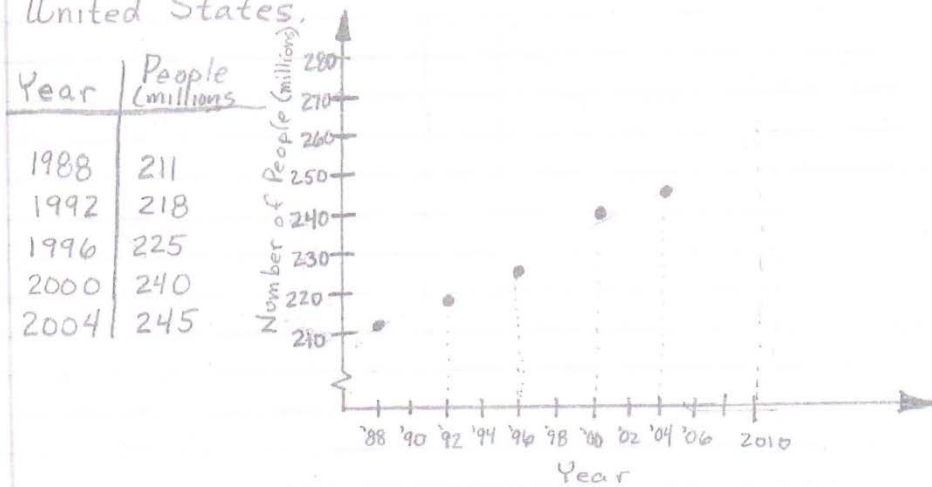


2.5 Statistics: Using Scatterplots

- 35 Draw a scatterplot and describe the correlation for following data that shows the number of people covered by private or government health insurance in the United States.



The correlation is positive.

- 36 Use two ordered pairs to write a prediction equation. Then use it to predict the number of people with health insurance in 2010.

use (1988, 211) and (2004, 245)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{245 - 211}{2004 - 1988} = \frac{34}{16} = \frac{17}{8}$$

$$y = \frac{17}{8}x - 4013.5$$

let $x = 2010$

$$y = \frac{17}{8}(2010) - 4013.5$$

$$y = 17(251.25) - 4013.5$$

$$y = 4271.25 - 4013.5 = 257.5$$

$$y = mx + b$$

$$245 = \frac{17}{8}(2004) + b$$

$$245 = 17(250.5) + b$$

$$245 = 4258.5 + b$$

$$-4258.5$$

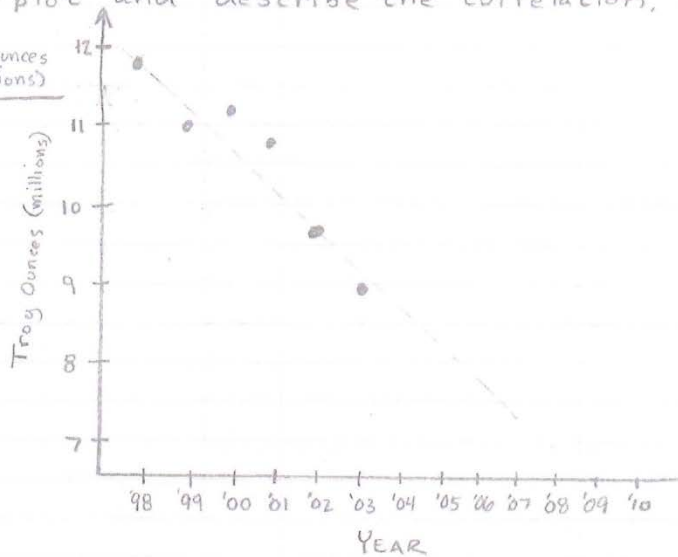
$$-4013.5 = b$$

$$257.5 \text{ million people}$$

2.5 continued...

37 Use the table showing the number of ounces of gold produced in the U.S. to draw a scatter plot and describe the correlation.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
| 1999 | 11.0 |
| 2000 | 11.3 |
| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |



There is a negative correlation.

38 Use ordered pairs to write a prediction equation

Use (1998, 11.8) and (2002, 9.6)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{9.6 - 11.8}{2002 - 1998} = \frac{-2.2}{4} = -0.55$$

$$\begin{aligned} y &= mx + b \\ 9.6 &= -0.55(2002) + b \\ 9.6 &= -1101.1 + b \\ +1101.1 & \quad +1101.1 \\ \hline 1110.7 &= b \end{aligned}$$

$$y = -0.55x + 1,110.7$$

Use the prediction equation to predict the number of ounces of gold that will be produced in 2010.

$$y = -0.55(2010) + 1,110.7$$

$$y = -1,105.5 + 1,110.7 = 5.2$$

5.2 troy ounces

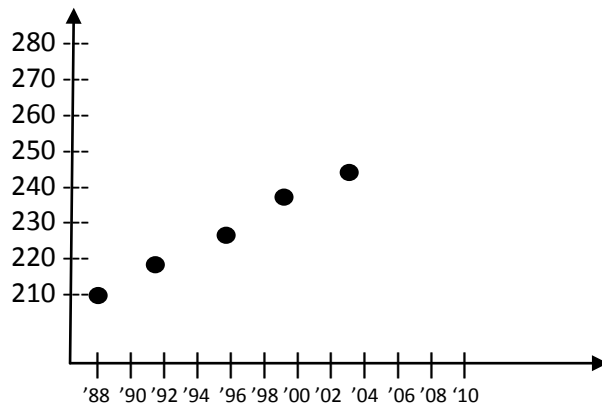
Assignment 2.5
Statistics: Using Scatter Plots

HEALTH INSURANCE

For Exercises 1 and 2 use the table that shows the number of people covered by private or government health insurance in the United States.

| Year | People (millions) |
|------|-------------------|
| 1988 | 211 |
| 1992 | 218 |
| 1996 | 225 |
| 2000 | 240 |
| 2004 | 245 |

1. Draw a scatter plot and describe the correlation.



The correlation is _____.

- A) positive
- B) negative

Assignment 2.5
 Statistics: Using Scatter Plots

2. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of people with health insurance in 2010.

use (1988, 211) and (2004, 245)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{245 - 211}{2004 - 1988} = \frac{34}{16} = \frac{17}{8}$$

$$y = mx + b$$

$$245 = 17/8 (2004) + b$$

$$245 = 17 (250.5) + b$$

$$245 = 4258.5 + b$$

$$\frac{-4258.5 - 4258.5}{-4258.5 - 4258.5} = b$$

245 - 4258.5 =

A) -4013.5
 B) 6440.5

$$y = 17/8x - 4013.5$$

$$y = 17/8(2010) - 4013.5$$

$$y = 17(251.25) - 4013.5$$

$$y = 4271.25 - 4013.5 = 257.5$$

4271.25 - 4013.5 =

A) -257.75
 B) 257.75

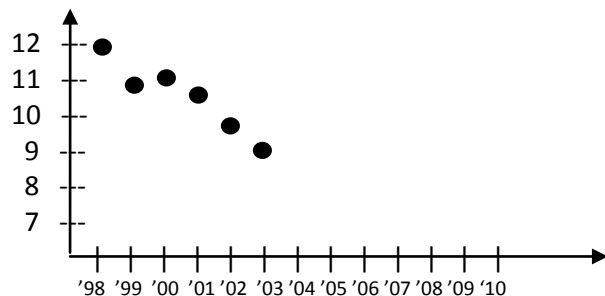
million people

GOLD PRODUCTION

For Exercises 3 and 4, use the table that shows the number of ounces of gold produced in the United States for several years.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
| 1999 | 11.0 |
| 2000 | 11.3 |
| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |

3. Draw a scatter plot and describe the correlation.



There is a _____ correlation.

A) positive
 B) negative

Assignment 2.5
 Statistics: Using Scatter Plots

4. Use two ordered pairs to write a prediction equation to predict the number of ounces of gold that will be produced in 2010.

use (1998, 11.8) and (2002, 9.6)

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{y - y}{x - x} = \frac{9.6 - 11.8}{2002 - 1998} = \frac{-2.2}{4} = -0.55$$

$$y = mx + b$$

$$9.6 = -0.55(2002) + b$$

$$9.6 = -1101.1 + b$$

$$\begin{array}{r} +1101.1 \quad +1101.1 \\ \hline \square = b \end{array}$$

$$9.6 + 1101.1 = \square$$

- A) -1110.7
 B) 1110.7

Use the prediction equation to predict the number of ounces of gold that will be produced in 2010.

$$y = -0.55(2010) + 1110.7$$

$$y = -1105.5 + 1110.7 = 5.2$$

 troy ounces

$$-1105.5 + 1110.7 = \img alt="purple circle icon" data-bbox="588 506 638 536"/>$$

- A) 5.2
 B) -2.5

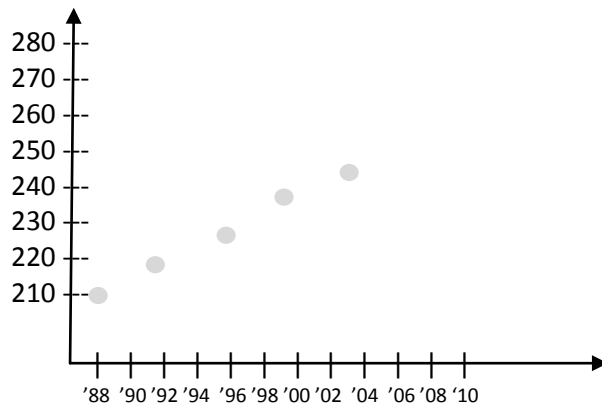
Assignment 2.5
Statistics: Using Scatter Plots

HEALTH INSURANCE

For Exercises 1 and 2 use the table that shows the number of people covered by private or government health insurance in the United States.

| Year | People (millions) |
|------|-------------------|
| 1988 | 211 |
| 1992 | 218 |
| 1996 | 225 |
| 2000 | 240 |
| 2004 | 245 |

1. Draw a scatter plot and describe the correlation. (color the dots in)



The correlation is _____.

- A) positive
- B) negative

Assignment 2.5
Statistics: Using Scatter Plots

2. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of people with health insurance in 2010.

use (1988, 211) and (2004, 245)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{245 - 211}{2004 - 1988} = \frac{34}{16} = \frac{17}{8}$$

$$y = mx + b$$

$$245 = 17/8 (2004) + b$$

$$245 = 17 (250.5) + b$$

$$245 = 4258.5 + b$$

$$\frac{-4258.5 - 4258.5}{-4258.5 - 4258.5} = b$$

$$\boxed{} = b$$

$$245 - 4258.5 = \boxed{}$$

$$y = 17/8x - 4013.5$$

$$y = 17/8(2010) - 4013.5$$

$$y = 17(251.25) - 4013.5$$

$$y = 4271.25 - 4013.5 = 257.5$$

$$4271.25 - 4013.5 = \boxed{}$$

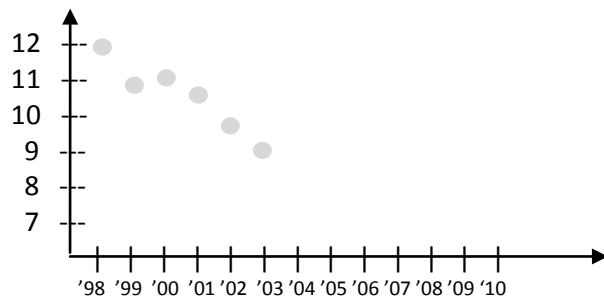
$\boxed{}$ million people

GOLD PRODUCTION

For Exercises 3 and 4, use the table that shows the number of ounces of gold produced in the United States for several years.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
| 1999 | 11.0 |
| 2000 | 11.3 |
| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |

3. Draw a scatter plot and describe the correlation. (color in the dots)



There is a _____ correlation.

A) positive
B) negative

Assignment 2.5
 Statistics: Using Scatter Plots

4. Use two ordered pairs to write a prediction equation to predict the number of ounces of gold that will be produced in 2010.

use (1998, 11.8) and (2002, 9.6)

$$\frac{y_2 - y_1}{x_2 - x_1} \quad m = \frac{y - y}{x - x} = \frac{9.6 - 11.8}{2002 - 1998} = \frac{-2.2}{4} = -0.55$$

$$y = mx + b$$

$$9.6 = -0.55(2002) + b$$

$$9.6 = -1101.1 + b$$


$$\begin{array}{r} + 1101.1 \quad + 1101.1 \\ \hline \square = b \end{array}$$

$$9.6 + 1101.1 = \square$$

Use the prediction equation to predict the number of ounces of gold that will be produced in 2010.

$$y = -0.55(2010) + 1110.7$$

$$y = -1105.5 + 1110.7 = 5.2$$

 troy ounces

$$-1105.5 + 1110.7 = \img alt="purple circle icon" data-bbox="588 504 642 534"/>$$

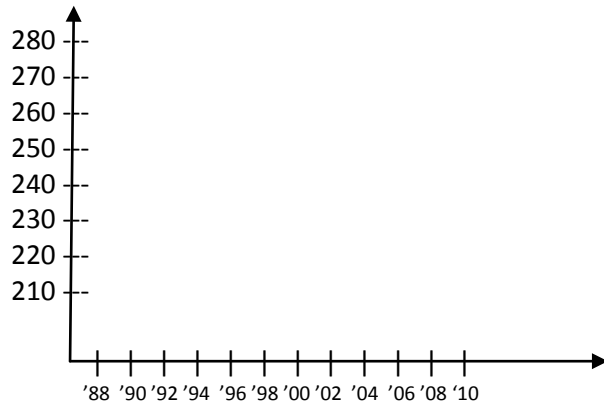
Assignment 2.5
Statistics: Using Scatter Plots

HEALTH INSURANCE

For Exercises 1 and 2 use the table that shows the number of people covered by private or government health insurance in the United States.

| Year | People (millions) |
|------|-------------------|
| 1988 | 211 |
| 1992 | 218 |
| 1996 | 225 |
| 2000 | 240 |
| 2004 | 245 |

1. Draw a scatter plot and describe the correlation.



The correlation is _____.

- A) positive
- B) negative

Assignment 2.5
 Statistics: Using Scatter Plots

2. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of people with health insurance in 2010.

use (1988, 211) and (2004, 245)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{245 - 211}{2004 - 1988} = \frac{\boxed{\text{orange}}}{\boxed{\text{teal}}} = \frac{\boxed{\text{purple}}}{\boxed{\text{pink}}}$$

$$\begin{aligned} y &= mx + b \\ 245 &= 17/8(2004) + b \\ 245 &= 17 \cdot \boxed{\text{blue}} + b \\ 245 &= \boxed{\text{red}} + b \\ - \boxed{\text{red}} & \quad - \boxed{\text{red}} \\ \hline \boxed{\text{yellow}} &= b \end{aligned}$$

$$\begin{aligned} y &= 17/8x - 4013.5 \\ y &= 17/8(2010) - 4013.5 \\ y &= 17(251.25) - 4013.5 \\ y &= 4271.25 - 4013.5 = 257.5 \end{aligned}$$

 million people

$$\begin{aligned} 2010 \div 8 &= \boxed{\text{green}} \\ 17 \cdot \boxed{\text{green}} &= \boxed{\text{dashed blue}} \\ \boxed{\text{dashed blue}} - 4013.5 &= \boxed{\text{dashed red}} \end{aligned}$$

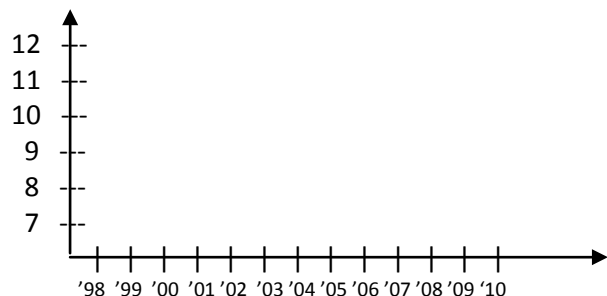
$$\begin{aligned} 245 - 211 &= \boxed{\text{orange}} \\ \boxed{\text{orange}} \div 2 &= \boxed{\text{purple}} \\ 2004 - 1988 &= \boxed{\text{teal}} \\ \boxed{\text{teal}} \div 2 &= \boxed{\text{pink}} \\ 2004 \div 8 &= \boxed{\text{blue}} \\ 17 \cdot \boxed{\text{blue}} &= \boxed{\text{red}} \\ 245 - \boxed{\text{red}} &= \boxed{\text{yellow}} \end{aligned}$$

GOLD PRODUCTION

For Exercises 3 and 4, use the table that shows the number of ounces of gold produced in the United States for several years.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
| 1999 | 11.0 |
| 2000 | 11.3 |
| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |

3. Draw a scatter plot and describe the correlation.



There is a _____ correlation.

A) positive
 B) negative

Assignment 2.5
 Statistics: Using Scatter Plots

4. Use two ordered pairs to write a prediction equation to predict the number of ounces of gold that will be produced in 2010.

use (1998, 11.8) and (2002, 9.6)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{9.6 - 11.8}{2002 - 1998} = \frac{\boxed{-2.2}}{\boxed{4}} = \boxed{-0.55}$$

$$9.6 - 11.8 = \boxed{-2.2}$$

$$2002 - 1998 = \boxed{4}$$

$$\boxed{-2.2} \div \boxed{4} = \boxed{-0.55}$$

$$\boxed{-0.55} \bullet 2002 = \boxed{-1105.5}$$

$$y = mx + b$$

$$9.6 = \boxed{-0.55}(2002) + b$$

$$9.6 = \boxed{-1105.5} + b$$

$$\frac{+1105.5}{+1105.5} \quad \frac{+1105.5}{+1105.5}$$

$$1110.7 = b$$

Use the prediction equation to predict the number of ounces of gold that will be produced in 2010.

$$y = -0.55(2010) + 1110.7$$

$$y = -1105.5 + 1110.7 = 5.2$$

 troy ounces

$$-0.55 \bullet 2010 = \boxed{-1105.5}$$

$$\boxed{-1105.5} + 1110.7 = \boxed{5.2}$$

Assignment 2.5
Statistics: Using Scatter Plots

HEALTH INSURANCE

For Exercises 1 and 2 use the table that shows the number of people covered by private or government health insurance in the United States.

| Year | People (millions) |
|------|-------------------|
| 1988 | 211 |
| 1992 | 218 |
| 1996 | 225 |
| 2000 | 240 |
| 2004 | 245 |

1. Draw a scatter plot and describe the correlation.

2. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of people with health insurance in 2010.

GOLD PRODUCTION

For Exercises 3 and 4, use the table that shows the number of ounces of gold produced in the United States for several years.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
| 1999 | 11.0 |
| 2000 | 11.3 |
| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |

3. Draw a scatter plot and describe the correlation.

4. Use two ordered pairs to write a prediction equation to predict the number of ounces of gold that will be produced in 2010.

Assignment 2.5
Statistics: Using Scatter Plots

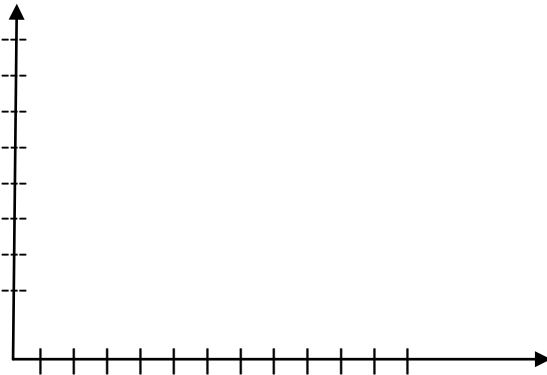
Assignment 2.5
Statistics: Using Scatter Plots

HEALTH INSURANCE

For Exercises 1 and 2 use the table that shows the number of people covered by private or government health insurance in the United States.

| Year | People (millions) |
|------|-------------------|
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| 1996 | 225 |
| 2000 | 240 |
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1. Draw a scatter plot and describe the correlation.



The correlation is _____.

Assignment 2.5
Statistics: Using Scatter Plots

2. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of people with health insurance in 2010.

use (1988, 211) and (2004, 245)

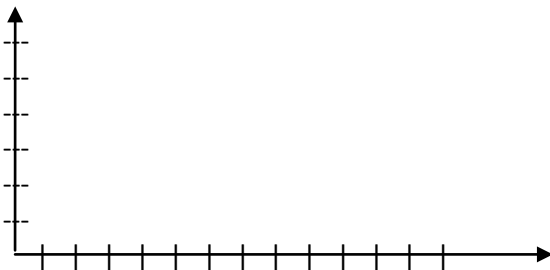
$$\frac{y_2 - y_1}{x_2 - x_1}$$

GOLD PRODUCTION

For Exercises 3 and 4, use the table that shows the number of ounces of gold produced in the United States for several years.

| Year | Troy ounces (millions) |
|------|------------------------|
| 1998 | 11.8 |
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| 2001 | 10.8 |
| 2002 | 9.6 |
| 2003 | 8.9 |

3. Draw a scatter plot and describe the correlation.



There is a _____ correlation.

Assignment 2.5
Statistics: Using Scatter Plots

4. Use two ordered pairs to write a prediction equation to predict the number of ounces of gold that will be produced in 2010.

use (1998, 11.8) and (2002, 9.6)

$$\frac{y_2 - y_1}{x_2 - x_1}$$