

Unit 0 HW 0.7 Scatterplots and Using Linear Models**Make a scatter plot and describe the correlation.**

- $\{(1, 7), (2, 11), (3, 16), (4, 20), (5, 22)\}$
- The table shows the percent of people of voting age who reported they Voted in presidential election years.

| Voting in Presidential Election Years | | | | | |
|---------------------------------------|------|------|------|------|------|
| Year | 1988 | 1992 | 1996 | 2000 | 2004 |
| % of people who voted | 57 | 61 | 54 | 55 | 58 |

SOURCE: [HTTP://WWW.CENSUS.GOV/POPULATION/WWW/SOCDEMO/VOTING.HTML#HIST](http://www.census.gov/population/www/socdemo/voting.html#hist)**Write the equation of a trend line, if possible.**

- $\{(1, 2.1), (3, 3.1), (5, 4.0), (7, 5.2), (9, 5.9)\}$
- $\{(-2, 3.9), (-1, 1.8), (0, 0.1), (1, -1.9), (2, -3.8)\}$
- The table shows the number of misdirected bags and the number of late flight arrivals by week, for one airline.

| Incidents per Week for January | | | | |
|--------------------------------|----|----|----|----|
| Number of Misdirected Bags | 37 | 42 | 25 | 9 |
| Number of Late Arrivals | 12 | 8 | 28 | 36 |

- The table shows the value of rice produced in Texas from 2001 to 2007.

| Value of Rice Produced in Taxes | | | | | | | |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Price per lb | \$.461 | \$.416 | \$.735 | \$.735 | \$.777 | \$ 1.00 | \$ 1.13 |

SOURCE: http://www.nass.usda.gov/Statistics_by_State/Texas/index.asp#.html

- Use a calculator to find the line of best fit. Let x = the number of years since 2000.
- Using your linear model, predict the value of rice in Texas in 2015.
- Using your linear model, predict when the price is likely to reach \$2.60 per pound.

7. The table shows the percent of the population not covered by health insurance in selected states for the years 1997 and 2006.

| Percent of Population Not Covered by Health Insurance | | | | | |
|---|-------|----------|----------|---------|----------|
| State | Idaho | Illinois | Michigan | Montana | New York |
| 1997 | 17.7 | 12.4 | 11.6 | 19.5 | 17.5 |
| 2006 | 15.4 | 14 | 10.5 | 17.1 | 14 |

SOURCE: WWW.CENSUS.GOV

- Which variable should be the independent variable?
 - Make a scatter plot. Use a calculator to find the line of best fit.
 - In Wyoming, 15.5% of the population was not covered by health insurance in 1997. Use the equation from part (c) to predict the percent of the population that was not covered in 2006.
 - Writing** The actual percent for Wyoming in 2006 was 14.6%. Is the line of best fit accurate? Explain.
8. The table shows the numbers of countries that participated in the Winter Olympics from 1984 to 2006.

| Winter Olympic Participation | | | | | | | |
|------------------------------|------|------|------|------|------|------|------|
| Year | 1984 | 1988 | 1992 | 1994 | 1998 | 2002 | 2006 |
| Number of Countries | 49 | 57 | 64 | 67 | 72 | 77 | 80 |

SOURCE: www.infoplease.com

- Make a scatter plot. Let x = the number of years since 1980.
 - Use a calculator to find the line of best fit and write the equation for the line.
 - Predict the number of participating countries in 2022.
9. The table shows the price per box of fresh Florida oranges from 2001 to 2006.

| Florida Oranges | | | | | | |
|-----------------|--------|--------|--------|--------|--------|--------|
| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Price Per Box | \$6.39 | \$6.99 | \$7.78 | \$6.07 | \$9.27 | \$8.40 |

SOURCE: http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/

- Make a scatter plot and find the trend line. Let x = the number of years since 2000.
- In 2007, the price per box of fresh oranges was \$16. Does this information follow the trend? Explain.
- Reasoning** Is a model invalid if new data does not fit its predictions? Explain.