

PROBLEM SOLVING

EXAMPLES 3, 4, and 5

on pp. 115–116
for Exs. 24–28



GRAPHING CALCULATOR You may wish to use a graphing calculator to complete the following Problem Solving exercises.

24. **POPULATION** The data pairs (x, y) give the population y (in millions) of Texas x years after 1997. Approximate the best-fitting line for the data.

$(0, 19.7), (1, 20.2), (2, 20.6), (3, 20.9), (4, 21.3), (5, 21.7), (6, 22.1), (7, 22.5)$

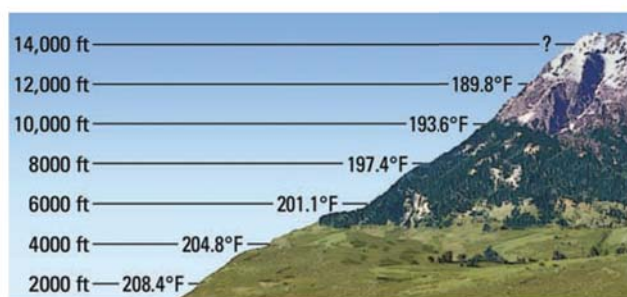
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25. **TUITION** The data pairs (x, y) give U.S. average annual public college tuition y (in dollars) x years after 1997. Approximate the best-fitting line for the data.

$(0, 2271), (1, 2360), (2, 2430), (3, 2506), (4, 2562), (5, 2727), (6, 2928)$

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26. **PHYSICAL SCIENCE** The diagram shows the boiling point of water at various elevations. Approximate the best-fitting line for the data pairs (x, y) where x represents the elevation (in feet) and y represents the boiling point (in degrees Fahrenheit). Then use this line to estimate the boiling point at an elevation of 14,000 feet.



27. **MULTIPLE REPRESENTATIONS** The table shows the numbers of countries that participated in the Winter Olympics from 1980 to 2002.

Year	1980	1984	1988	1992	1994	1998	2002
Countries	37	49	57	64	67	72	77

- a. **Making a List** Use the table to make a list of data pairs (x, y) where x represents years since 1980 and y represents the number of countries.
- b. **Drawing a Graph** Draw a scatter plot of the data pairs from part (a).
- c. **Writing an Equation** Write an equation that approximates the best-fitting line, and use it to predict the number of participating countries in 2014.
28. **TAKS REASONING** The table shows manufacturers' shipments (in millions) of cassettes and CDs in the United States from 1988 to 2002.

Year	1988	1990	1992	1994	1996	1998	2000	2002
Cassettes	450.1	442.2	336.4	345.4	225.3	158.5	76.0	31.1
CDs	149.7	286.5	407.5	662.1	778.9	847.0	942.5	803.3

- a. Draw a scatter plot of the data pairs (year, shipments of cassettes). Describe the correlation shown by the scatter plot.
- b. Draw a scatter plot of the data pairs (year, shipments of CDs). Describe the correlation shown by the scatter plot.
- c. Describe the correlation between cassette shipments and CD shipments. What real-world factors might account for this?