

PROBLEM SOLVING

EXAMPLE 4


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for Exs. 37, 39,
40

37. **TELEVISION** In order to use an excerpt from a movie in a new television show, the television producer must pay the director of the movie \$790 for the first 2 minutes of the excerpt and \$130 per minute after that.
- Write an equation that gives the total cost (in dollars) of using the excerpt as a function of the length (in minutes) of the excerpt.
 - Find the total cost of using an excerpt that is 8 minutes long.

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EXAMPLE 5

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38.  **TAKS REASONING** A school district pays an installation fee and a monthly fee for Internet service. The table shows the total cost of Internet service for the school district over different numbers of months. *Explain* why the situation can be modeled by a linear equation. What is the installation fee? What is the monthly service fee?

Months of service	2	4	6	8	10	12
Total cost (dollars)	9,378	12,806	16,234	19,662	23,090	26,518


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39. **COMPANY SALES** During the period 1994–2004, the annual sales of a small company increased by \$10,000 per year. In 1997 the annual sales were \$97,000. Write an equation that gives the annual sales as a function of the number of years since 1994. Find the sales in 2000.

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40. **TRAFFIC DELAYS** From 1990 to 2001 in Boston, Massachusetts, the annual excess fuel (in gallons per person) consumed due to traffic delays increased by about 1.4 gallons per person each year. In 1995 each person consumed about 37 gallons of excess fuel.
- Write an equation that gives the annual excess fuel (in gallons per person) as a function of the number of years since 1990.
 - How much excess fuel was consumed per person in 2001?

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41.  **TAKS REASONING** The table shows the cost of ordering sets of prints of digital photos from an online service. The cost per print is the same for the first 30 prints. There is also a shipping charge.

Number of prints	1	2	5	8
Total cost (dollars)	1.98	2.47	3.94	5.41

- Explain* why the situation can be modeled by a linear equation.
- Write an equation in point-slope form that relates the total cost (in dollars) of a set of prints to the number of prints ordered.
- Find the shipping charge for up to 10 prints.
- The cost of 15 prints is \$9.14. The shipping charge increases after the first 10 prints. Find the shipping charge for 15 prints.

