LESSON 9.6

NAME _____ DATE _____

Real-Life Application: When Will I Ever Use This?

For use with pages 541–547

Factory Sales

You and your friend want to start a small business dealing with pagers. You want to know if this is a reasonable business or a risky business adventure. To find this out, you decide to find the factory sales (in millions of dollars) of pagers from 1990 to 1996. In 1990 there were \$118 million in factory sales and in 1996 there were \$370 million in factory sales.

You decide that for the business to prosper there should be about \$500,000,000 in factory sales of pagers. The equation $S = 5.4t^2 + 8.3t + 122.5$ models the pager factory sales, where S is the sales (in millions of dollars) and t is the year with $t = 0$ representing 1990.

In Exercises 1-3, use the information above.

1. Using the equation $S = 5.4t^2 + 8.3t + 122.5$, the number \$500,000,000 in factory sales would correspond to an S-value of 500. Why?
2. Substitute the S-value in Exercise 1 in the equation and rewrite the equation in standard form.
3. Use the discriminant to decide if the equation you found in Exercise 2 has a solution. Will this business be risky or not?

In Exercises 4 and 5, use the following information.

You and your friend are also considering a business repairing laserdisc players. The factory sales of laserdisc players from 1990 to 1996 can be modeled by the equation $S = -5.3t^2 + 34.25t + 61.4$ where S is the sales (in millions of dollars) and t is the year with $t = 0$ representing 1990.

4. You decide that for the business to be successful there has to be about \$120,000,000 in factory sales of laserdisc players. Substitute the corresponding S-value in the equation and rewrite the equation in standard form.
5. Decide whether the business will be successful.