EXAMPLE 5 ❖ **TAKS REASONING: Multi-Step Problem**

CAR WASH Use the sign shown. A gas station charges $.10 less per gallon of gasoline if a customer also gets a car wash. What are the possible amounts (in gallons) of gasoline that you can buy if you also get a car wash and can spend at most $20?

Gasoline 2.09
Car Wash 8.00
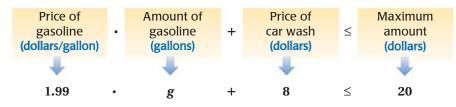
Solution

Because you are getting a car wash, you will pay $2.09 − $.10 = $1.99 per gallon of gasoline. Let g be the amount (in gallons) of gasoline that you buy.

STEP 1 **Write** a verbal model. Then write an inequality.

Price of gasoline (dollars/gallon)	•	Amount of gasoline (gallons)	+	Price of car wash (dollars)	≤	Maximum amount (dollars)
1.99	•	g	+	8	≤	20

STEP 2 **Solve** the inequality.

$1.99g + 8 \leq 20$	**Write inequality.**
$1.99g \leq 12$	**Subtract 8 from each side.**
$g \leq 6.03015...$	**Divide each side by 1.99.**

▶ You can buy up to slightly more than 6 gallons of gasoline.

CHECK You can use a table to check the reasonableness of your answer.

The table shows that you will pay $19.94 for exactly 6 gallons of gasoline. Because $19.94 is less than $20, it is reasonable to conclude that you can buy slightly more than 6 gallons of gasoline.

Gasoline (gal)	Total amount spent (dollars)
0	8.00
1	9.99
2	11.98
3	13.97
4	15.96
5	17.95
6	19.94

✓ **GUIDED PRACTICE** for Example 5

7. **WHAT IF?** In Example 5, suppose that a car wash costs $9 and gasoline regularly costs $2.19 per gallon. What are the possible amounts (in gallons) of gasoline that you can buy?

8. **CAMP COSTS** You are saving money for a summer camp that costs $1800. You have saved $500 so far, and you have 14 more weeks to save the total amount. What are the possible average amounts of money that you can save per week in order to have a total of at least $1800 saved?