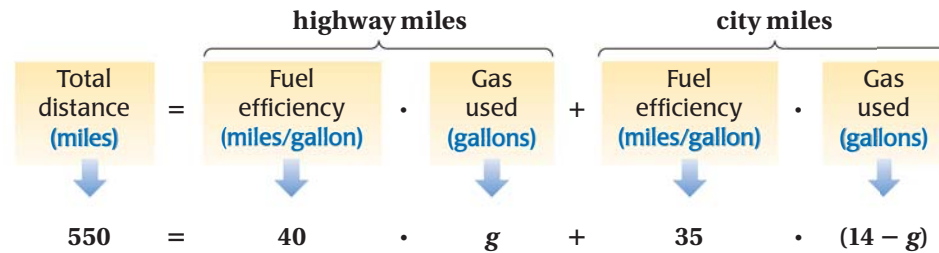**EXAMPLE 4**   **TAKS PRACTICE: Multiple Choice**

A car used 14 gallons of gasoline and traveled a total distance of 550 miles. The car's fuel efficiency is 40 miles per gallon on the highway and 35 miles per gallon in the city. How many gallons of gasoline were used on the highway?

(A) 6 gallons   **(B)** 10 gallons   **(C)** 12 gallons   **(D)** 14 gallons

Solution

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

highway miles   city miles

Total distance (miles)	=	Fuel efficiency (miles/gallon)	·	Gas used (gallons)	+	Fuel efficiency (miles/gallon)	·	Gas used (gallons)
550	=	40	·	g	+	35	·	$(14 - g)$

An equation for the situation is $550 = 40g + 35(14 - g)$.

STEP 2 **Solve** for g to find the number of gallons used on the highway.

$550 = 40g + 35(14 - g)$	**Write equation.**
$550 = 40g + 490 - 35g$	**Distributive property**
$550 = 5g + 490$	**Combine like terms.**
$60 = 5g$	**Subtract 490 from each side.**
$12 = g$	**Divide each side by 5.**

The car used 12 gallons on the highway.

▸ The correct answer is C.   **(A)** **(B)** **(C)** **(D)**

CHECK $40 \cdot \mathbf{12} + 35(14 - \mathbf{12}) = 480 + 70 = 550$ ✓

✓ **GUIDED PRACTICE**   for Examples 2, 3, and 4

2. PARAMOTORING The table shows the height h of a paramotorist after t minutes. Find the height of the paramotorist after 8 minutes.

Time (min), t	0	1	2	3	4
Height (ft), h	2400	2190	1980	1770	1560

3. WHAT IF? In Example 3, how would your answer change if there were only three championship banners?

4. FUEL EFFICIENCY A truck used 28 gallons of gasoline and traveled a total distance of 428 miles. The truck's fuel efficiency is 16 miles per gallon on the highway and 12 miles per gallon in the city. How many gallons of gasoline were used in the city?