

**GUIDED PRACTICE** for Examples 1 and 2

Solve the equation. Check your solution.

1. $24 - 3m = 5m$

2. $20 + c = 4c - 7$

3. $9 - 3k = 17 - 2k$

4. $5z - 2 = 2(3z - 4)$

5. $3 - 4a = 5(a - 3)$

6. $8y - 6 = \frac{2}{3}(6y + 15)$

**EXAMPLE 3** Solve a real-world problem

CAR SALES A car dealership sold 78 new cars and 67 used cars this year. The number of new cars sold by the dealership has been increasing by 6 cars each year. The number of used cars sold by the dealership has been decreasing by 4 cars each year. If these trends continue, in how many years will the number of new cars sold be twice the number of used cars sold?

Solution

Let x represent the number of years from now. So, $6x$ represents the increase in the number of new cars sold over x years and $-4x$ represents the decrease in the number of used cars sold over x years. Write a verbal model.

New cars sold this year	+	Increase in new cars sold over x years	=	2 (Used cars sold this year	+	Decrease in used cars sold over x years)
↓		↓			↓		↓	
78	+	$6x$	=	2 (67	+	$(-4x)$)
					$78 + 6x = 2(67 - 4x)$			Write equation.
					$78 + 6x = 134 - 8x$			Distributive property
					$78 + 14x = 134$			Add $8x$ to each side.
					$14x = 56$			Subtract 78 from each side.
					$x = 4$			Divide each side by 14.

► The number of new cars sold will be twice the number of used cars sold in 4 years.

CHECK You can use a table to check your answer.

Year	0	1	2	3	4
Used cars sold	67	63	59	55	51
New cars sold	78	84	90	96	102

The number of new cars sold is twice the number of used cars sold in 4 years.

**GUIDED PRACTICE** for Example 3

7. **WHAT IF?** In Example 3, suppose the car dealership sold 50 new cars this year instead of 78. In how many years will the number of new cars sold be twice the number of used cars sold?