

1.4 Write Equations and Inequalities

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EXAMPLE

Write an inequality for the sentence “The sum of 3 and twice a number k is no more than 15”. Then check whether 4 is a solution of the inequality.

An inequality is $3 + 2k \leq 15$.

To check whether 4 is a solution of the inequality, substitute 4 for k .

$$3 + 2(4) \stackrel{?}{\leq} 15 \quad \text{Substitute 4 for } k.$$

$$11 \leq 15 \quad \checkmark \quad \text{The solution checks. So, 4 is a solution.}$$

EXERCISES

Write an equation or an inequality.

28. The product of a number z and 12 is 60.
29. The sum of 13 and a number t is at least 24.

Check whether the given number is a solution of the equation or inequality.

30. $3x - 4 = 10$; 5 31. $4y - 2 \geq 2$; 3 32. $2d + 4 < 9d - 7$; 3

EXAMPLES 1 and 2

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for Exs. 28–32

1.5 Use a Problem Solving Plan

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EXAMPLE

A rectangular banner is 12 feet long and has an area of 60 square feet. What is the perimeter of the banner?

STEP 1 Read and Understand You know the length of the rectangular banner and its area. You want to find the perimeter.

STEP 2 Make a Plan Use the area formula for a rectangle to find the width. Then use the perimeter formula for a rectangle.

STEP 3 Solve the Problem Substituting 12 for ℓ in the formula $A = \ell w$, $60 = 12w$. Because $12 \cdot 5 = 60$, $w = 5$. Then substituting 12 for ℓ and 5 for w in the formula $P = 2\ell + 2w$, $P = 2(12) + 2(5) = 34$ feet.

STEP 4 Look Back Use estimation. Since $\ell \approx 10$ and $A = 60$, $w \approx 6$. Then $P \approx 2(10) + 2(6) = 32$ feet, so your answer is reasonable.

EXERCISES

33. **U.S. HISTORY** The flag that inspired the national anthem was a rectangle 30 feet wide and 42 feet long. Pieces of the flag have been lost. It is now 30 feet wide and 34 feet long. How many square feet have been lost?
34. **PATTERNS** A grocery clerk stacks three rows of cans of fruit for a display. Each of the top two rows has 2 fewer cans than the row beneath it. There are 30 cans altogether. How many cans are there in each row?

EXAMPLES 1, 2, and 3

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for Exs. 33–34