

1 TAKS PREPARATION



TAKS Obj. 10
TEKS 8.14.B

REVIEWING THE PROBLEM SOLVING PLAN

To solve a math problem that requires more than performing straightforward calculations, you need to approach the problem with an organized plan.

A Problem Solving Plan

- STEP 1 Understand the problem.** Read the problem carefully. Organize the information you are given and decide what you need to find.
- STEP 2 Make a plan to solve the problem.** Choose a strategy.
- STEP 3 Carry out the plan to solve the problem.** Use the problem solving strategy to answer the question.
- STEP 4 Evaluate the solution to see if your answer is reasonable.** Reread the problem and see if your answer agrees with the given information.

EXAMPLE

The table shows the heights to the top of the first few stories of a tall building. Find the height to the top of the 18th story.

Story	Lobby	1	2	3	4
Height to top of story (feet)	22	34	46	58	70

Solution

- STEP 1 Understand the problem.** You know the heights to the tops of several stories of a building. You want the height to the top of the 18th story.
- STEP 2 Make a plan.** Look for a pattern in the heights from the table. Use the pattern to write a model for the height. Then substitute the story number into the model to find the height that the problem asks for.
- STEP 3 Carry out the plan.** After the lobby, the height increases by 12 feet per story. Use this pattern to write a verbal model for the height.

$$\begin{array}{ccccccc} \text{Height to} & = & \text{Lobby} & + & \text{Height} & \cdot & \text{Number} \\ \text{top of story} & & \text{height} & & \text{per story} & & \text{of stories} \\ \text{(feet)} & & \text{(feet)} & & \text{(feet/story)} & & \text{(stories)} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ h & = & 22 & + & 12 & \cdot & n \end{array}$$

► An equation for the height is $h = 22 + 12n$. So, the height to the top of the 18th story is $h = 22 + 12(18) = 238$ feet.

- STEP 4 Evaluate the solution.** Use unit analysis to check your answer.

$$238 \text{ feet} = 22 \text{ feet} + \frac{12 \text{ feet}}{1 \text{ story}} \cdot 18 \text{ stories}$$