SAT MATH CHALLENGE

A swimming pool is initially filled to a depth of 96 inches. After 2 weeks, the depth has decreased to 92½ inches. Assuming that the depth decreased at a constant rate, after how many *days* would the water depth have reached 93¾ inches?

A: 3
B:7
C:9
D:6

Question 1 Explanation:

Correct Answer: C: 9
Since the answer is asking for the number of days, we will treat 2 weeks as 14 days. In 14 days, the water level dropped from 96 to 92½ inches. That is a change of 3½ inches in 14 days; this would be the same as 7 inches in 28 days (doubling the numerator and denominator), which can be reduced to 1 inch in 4 days; or ¼ inch for each day.

We are asked how many days it would take at the rate of ¼ inch per day for the depth to go from 96 to 93¾ inches, a change of 2¼ inches. We can think of 2¼ inches as 1 inch (4 days) + 1 inch (4 days) + ¼ inch (1 day), a total of 9 days.

The above approach is one such "no-calculator" approach to solving the following:

$$\frac{3_{12} \text{ inches}}{14 \text{ days}} = \frac{2\ 1/4 \text{ inches}}{x \text{ days}}$$