Snail Word Problem

Question: A well is 31 ft deep. A snail climbs up 7 ft each day and slips back 2 ft each night. How many days will it take the snail to get out of the well?

Answers:

1. Draw a picture.

The snail gets out on the 6th day.
2. Use a formula.

Set \( d \) = the number of days it takes the snail to climb out of the well. This is the variable you will solve for. Set \( y \) = the depth of the well, \( a \) = the distance the snail climbs during one day, and \( b \) = the distance the snail falls in one night. Because the snail won’t slide back on the day he escapes from the well, we have the equation

\[
y = a \cdot d - b(d - 1).
\]

For the question above,

\[
\begin{align*}
31 &= 7 \cdot d - 2(d - 1) \\
31 &= 7d - 2d + 2 \\
31 &= 5d + 2 \\
29 &= 5d \\
d &= \frac{29}{5} = 5.8
\end{align*}
\]

It takes the snail 5 days plus \( \frac{4}{5} \) of the next day to escape the well, that is, he gets out of the well on the 6th day.