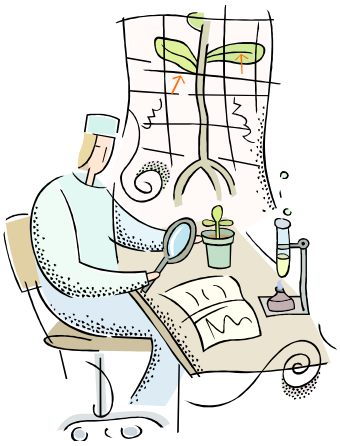
THE PLANT PROBLEM

Name _____

Intro to Multistep Equations in Context



Professor Botano is gathering data on the growth rate of a certain new hybrid seed. He spilled coffee on his clipboard and destroyed most of the data, but he DID remember that the seed had been growing at a constant rate throughout his observations. Help him reconstruct the data.

❶ Figure out the missing values for Professor Botano's table below:

# of days since seed was planted	0	2	3	4	6	8
Height of seedling (in inches)				7	12	

❷ What is the plant's daily growth rate? _____

❸ What is a possible explanation for the number in the height spot on day 0?

❹ Write a function for the height of the seedling in terms of days (use h for height and d for days): _____

❺ Determine and explain the **domain** and **range** of your function.

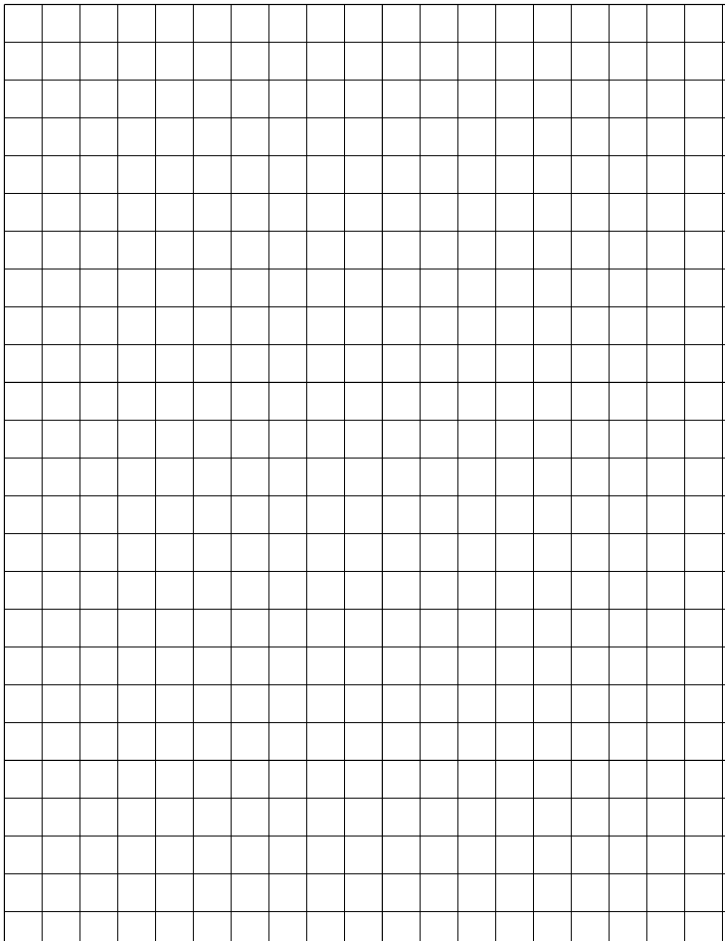
❻ **Think, show, and interpret!**

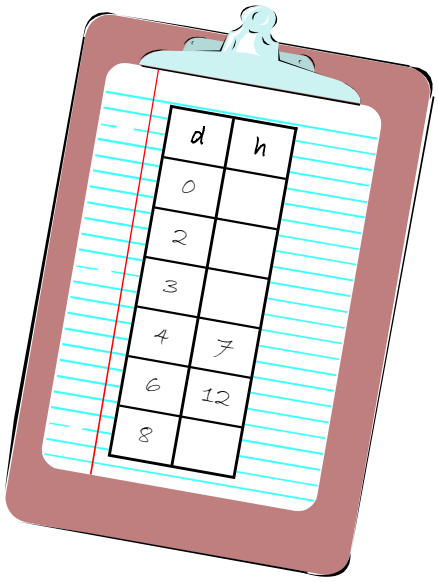
How tall was the plant on **day 1**?

When will the plant be **20 inches** tall?

❼ Use this grid to create your <u>best possible</u> line graph that shows the height of the plant in terms of days.

Professor Botano's Hybrid Seed Study: an Analysis of Height over Time

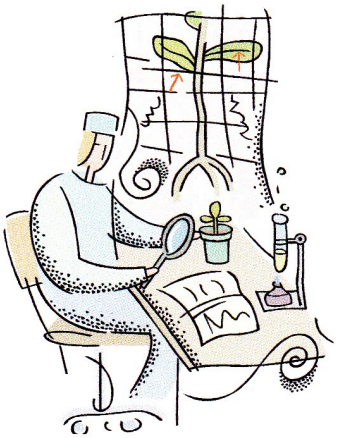




THE PLANT PROBLEM

Name Teacher's Key

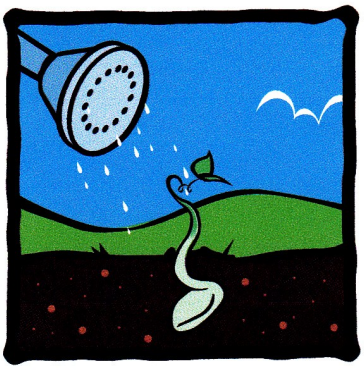
Intro to Multistep Equations in Context



Professor Botano is gathering data on the growth rate of a certain new hybrid seed. He spilled coffee on his clipboard and destroyed most of the data, but he DID remember that the seed had been growing at a constant rate throughout his observations. Help him reconstruct the data.

Figure out the missing values for Professor Botano's table below:

# of days since seed was planted	0	2	3	4	6	8
Height of seedling (in inches)	-3	2	4.5	7	12	17



What is the plant's daily growth rate? 5 inches every 2 days OR 2.5 inches/day

What is a possible explanation for the number in the height spot on day 0?

-3 probably means it is three inches below the surface

Write a function for the height of the seedling in terms of days (use h for height and d for days): $h = 2.5d - 3$

Determine and explain the **domain** and **range** of your function.

domain: $d \geq 0$, but also a reasonable maximum should be considered ... perhaps $d \leq 10$? You probably shouldn't predict too far into the future when dealing with scientific experiments!

range: assuming $0 \leq d < 10$, then range would be $-3 \leq h < 22$

Think, show, and interpret!

How tall was the plant on **day 1**?

$d = 1$, so $h = 2.5(1) - 3$

$h = -0.5$

The seedling was still ½" under the surface on day 1!

When will the plant be **20 inches** tall?

$h = 20$, so $20 = 2.5d - 3$

$+3 \qquad +3$

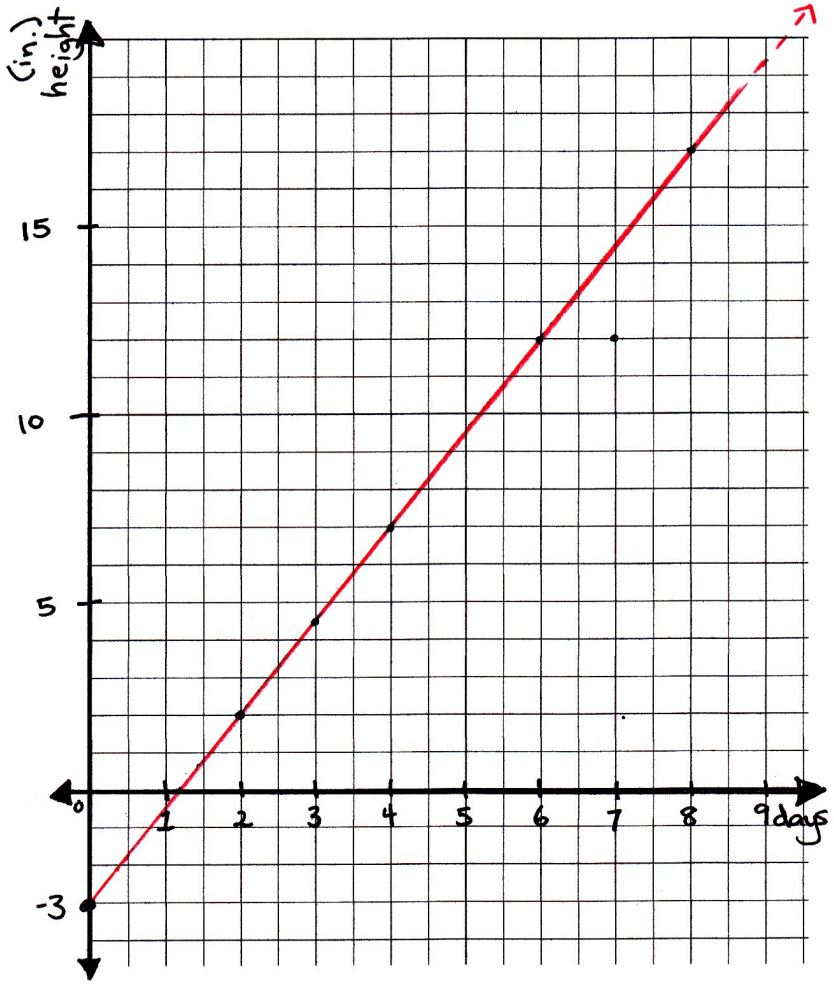
$\frac{23}{2.5} = \frac{2.5d}{2.5}$

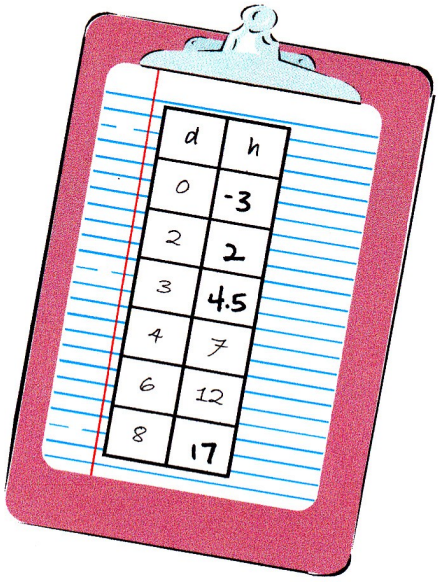
$d = 9.2$

9.2 days after planting would be 4:48 AM on day #9!

Use this grid to create your best possible line graph that shows the height of the plant in terms of days.

Professor Botano's Hybrid Seed Study: an Analysis of Height over Time





careful placement of axes + scale ensure that the graph fills the grid