

Paragraph:



Function for the bullet's distance:

$$d(t) = 250t$$

Function for Superman's distance:

$$d(t) = 800t$$

Linear Functions

Paragraph:

Plant A → starts at 1 in height
grows 1 in/week

Plant B grows slower,
but starts taller.

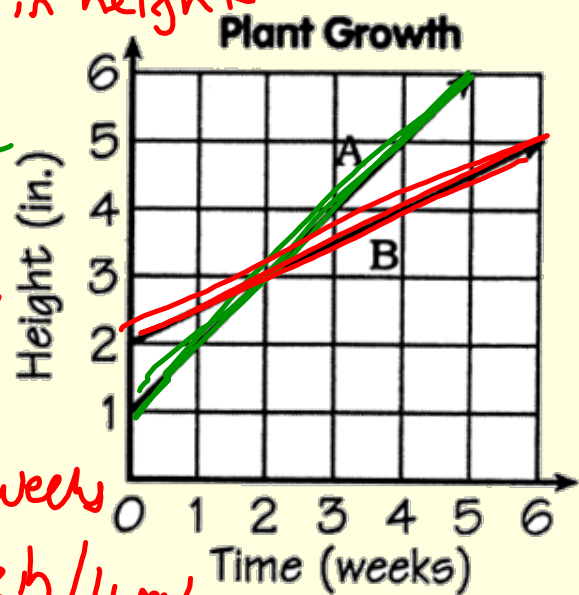
Plant B grows 1 in/2 weeks
or $\frac{1}{2}$ in/week.

Function for Height of Plant A:

$$h(t) = t + 1$$

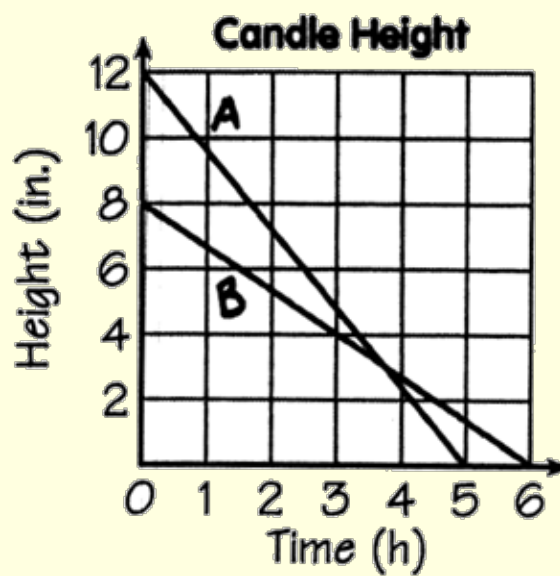
Function for Height of Plant B:

$$h(t) = \frac{1}{2}t + 2$$



Linear Functions

Paragraph:

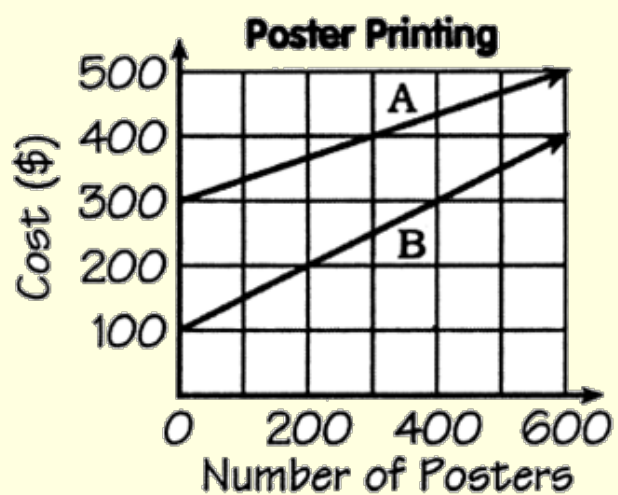


Function for Height of Candle A:

Function for Height of Candle B:

Linear Functions

Paragraph:

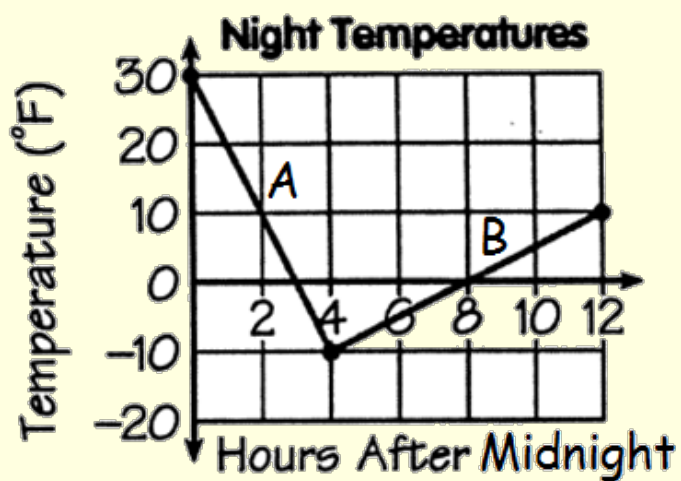


Function for Company A:

Function for Company B:

Linear Functions

Paragraph:

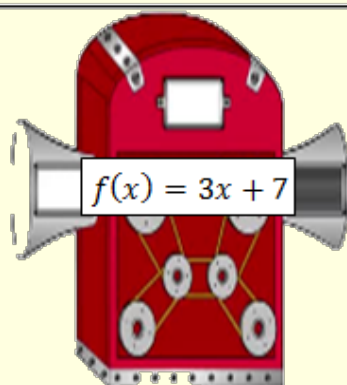


Function for temperature until 4am:

Function for temperature after 4am:

Linear Functions

x	$f(x)$
5	22
$\frac{11}{3}$	18
2.8	15.4
$\frac{1}{3}$	8



$$\begin{aligned}
 f(5) &= 3(5) + 7 \\
 &= 15 + 7 \\
 &= 22
 \end{aligned}$$

$$\begin{aligned}
 18 &= 3x + 7 \\
 11 &= 3x \quad x = \frac{11}{3}
 \end{aligned}$$

Linear Functions

You already know a lot about finding linear functions.

We can find the equation of the line in $y = mx + b$ form.
as long as we have

- a slope and any point
- or any two points

Linear Functions

Suppose you are suspending weights from a spring. The length of the spring is a linear function of the amount of weight suspended from it.

When a 20 g weight is attached to the spring, it stretches to 7.5 cm.
When an 80 g weight is attached to the spring, it stretches to 15 cm.

a) Write a function to represent the length of the spring with any weight w .

$$y = \frac{1}{8}x + 5$$

b) How long is the spring when no weight is attached to it?

5cm

c) What weight will stretch the string to 20 cm?

120g

Homework Assignment:

page 146 (#3) and page 150 (1-4 all)