

Math 80 Quiz #2 Solutions

1. **Unknown:** Time it takes for Simon to be 18 feet ahead of Garfunkel = t

Compiling the Information:

	Speed/Rate (ft/sec)	Time (sec)	Distance (ft)
Simon	9	t	$9t$
Garfunkel	7	t	$7t$

Both Simon and Garfunkel have run for t seconds. To get the distance that each has run, we multiply their speeds and the time they have run.

If Simon is 18 feet ahead of Garfunkel, then

$$(\text{Distance Garfunkel has run}) + 18 = (\text{Distance Simon has run}).$$

Equation: $7t + 18 = 9t$ (Alternatively, you could have $9t - 7t = 18$.)

Solving for t : $18 = 2t$ (Subtracting $7t$ from each side)
 $9 = t$ (Dividing both sides by 2)

Answer: It takes 9 seconds for Simon to get 18 feet ahead of Garfunkel.

2. (a) The balloon floats at a constant altitude for 15 minutes (from $t = 5$ minutes to $t = 20$ minutes).
(b) The balloon is 200 feet high after 25 minutes. (Looking at $t = 25$ and seeing that the vertical coordinate is 200.)
3. (a) If $x = -2$, then $y = \frac{1}{2}(-2) - 3 = -1 - 3 = -4$.

$$\begin{aligned} \text{If } y = -3, \text{ then } -3 &= \frac{1}{2}x - 3 \Rightarrow 0 = \frac{1}{2}x && \text{(Adding 3 to both sides)} \\ & && 0 = x && \text{(Multiplying both sides by 2)} \end{aligned}$$

$$\text{If } x = 6, \text{ then } y = \frac{1}{2}(6) - 3 = 3 - 3 = 0.$$

x	y
-2	-4
0	-3
6	0

- (b) After plotting the points from part (a), you can draw the line through the points, which will give you the graph of $y = \frac{1}{2}x - 3$.

