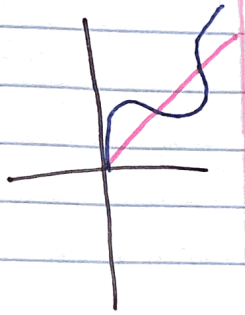
Homework Journal

Question 3

Marcos traveled for 2 hours & 17 minutes without stopping a distance of 155 miles from Phoenix to Flagstaff



a. Marcos didn't travel at a constant speed

↳ In the graph we were shown two different lines. Since we know that Marcos wasn't driving at a constant speed we can infer that the line wouldn't be straight. Therefore, we can asume that he was the blue line.

b. Determine Marcos's average speed for the 155 mile trip.

1. (0,0) 2. (1.5, 100) ~~3. (2.283, 155)~~,

we are looking for miles per hour.

Given: 2 hours & 17 minutes

Miles: 155

$\frac{17}{60} = 0.283$

↳ $\frac{155}{2.283} = 67.893$ miles per hour.

NOTE

The units makes a difference. Its not asking in terms of minutes but rather in terms of hours. The 17 minutes needs to be changed to hours therefore I divided the 17 minutes over 1 hour which is 60 minutes. Then divided my total miles with my hours to get the average speed for miles/hr.

c. i Devon left at the same time and from the same location as Marcos & arrives at the same time. He drives at a constant speed.

Since we know that he drives at a constant speed for the total 155 miles and it takes 2hr 17 minutes we can infer that he is infact the constant red line that we see since constant means linear.

ii At what constant speed did devon drive?

$\frac{17}{60} = 0.283$ $\frac{155}{2.283} = 67.824$

This one focused mostly on the miles/hour type of formula & getting the answer from the graph & context

Because devon & marcos both have the same origin & destination & both leave at the same time and reach the destination at the same time. The answer would also be 67.a0z1.

Question 2.

A truck's distance from a warehouse, d, measured in miles is ~~modeled~~ modeled by the formula $d = t^2 + 60t$ where t represents the number of hours since the truck left the warehouse. The trucks destination is 420.5 miles away.

a. How many hours will it take the truck to reach its destination?

This one focused on finding the total either by graphing or in my case my quadratic equation.

$d = t^2 + 60t$

$420.5 = t^2 + 60t$

$t^2 + 60t = 420.5$

$\frac{-60 \pm \sqrt{(60)^2 - 4(1)(-420.5)}}{2(1)} \rightarrow \frac{-60 \pm \sqrt{5282}}{2}$

$x = \frac{-60 \pm \sqrt{5282}}{2}$

↳ when you put this in the calculator the decimal is roughly 6.3386 which is why my answer is 6.34 and also its an estimated value.

b. A car left the warehouse at the same time as the truck and its driver plans to arrive at the destination (by driving the same route as the truck) at the same time as the truck. What constant speed should the car travel to reach the destination at the same time as the truck?

Truck leaving the warehouse
↳ (0,0)
- destination is 420.5 miles
- Time is 6.32492
↳ roughly 6.34

We can think of this in terms of the truck. what is the tricks constant? Since the car does exactly the same as the truck. $\frac{420.5}{6.34} = 66.32492$. We just need to divide the total speed by the hours we had

Homework Journal

Question 8

a. $|x|=7$

$|-7|=7$ $|7|=7$

The answer would be 7 & -7 b/c the | | in the absolute value turns any ~~question~~ number possitive which is why -7 is also the answer.

b. $|x-4|=3$

$x=7, 1$

$|x-4|=3 \rightarrow x-4=3$ $x-4=-3$

$+4\ +4$ $+4\ +4$

$x=7$ $x=1$

The answer would be 7 & 1 because in order to solve this equation for x the 3 changes sign. NOT the -4 it is always the # where -3 is at.

c. $|5x-9|=15$

$5x-9=15$ $5x-9=-15$

$+9\ +9$ $+9\ +9$

$\frac{5x}{5}=\frac{24}{5}$ $\frac{5x}{5}=\frac{6}{5}$

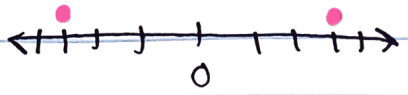
$x=4.8, -1.2$

When solving for x in an absolute value we turn it into two equations. One where we keep is positive and the other where we change is to negative. After that we can solve regularly just to find the answer to x.

This question focused on practicing to solve absolute values and the different ways one can approach it depending on the equation.

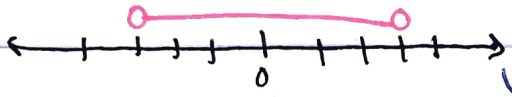
Homework Journal

a. Illustrate the solutions to $|x|=3$ on the number line.



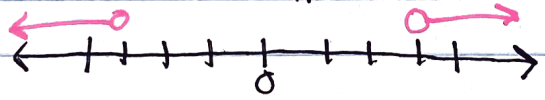
In an absolute value both + & − can equal to a positive # b/c of || that turns the # inside positive. In this case it is a close circle b/c of the = sign that is shown. The statement must be true no matter what.

b. Illustrate the solutions to $|x|<3$ on the # line. ← Pay attention to the sign. ↑ Try to work it out if you don't understand the sign.



In this ~~equa~~ number line we can see how it differs from the first part. We aren't asked what x equals to but rather the numbers (x) that are less than 3. x in this instance can't be greater than 3. It is open circle b/c it doesn't ~~is~~ state that it could be equal to.

c. Illustrate the solutions to $|x|>3$ on the number line.



The problem reads "x is greater than 3" So in this instance x has to show numbers greater. I need to remember that in an absolute ~~expression~~ solution I can have both negative and possitive numbers as well. Also the sign doesn't say equal to 3 so we need to leave it as an open circle.

This mainly focused on the linear equations of the absolute value and highlighted that the signs can affect the equation/answers so we gotta be on the look out for that