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WORKSHEET #4
Math 6A20, Fall 2020

Name: JAQUELINE Martinez **Group Name:** _____

Instructions. You are encouraged to work with **(not copy)** your group, but each of you will turn in your own worksheet by the end of the day on Wed, Nov 4 (11:59 pm) via Gradescope. You may ask the TA a few questions, which the TA will answer with leading questions (not answers) to help guide you.Similarly, you may ask questions during office hours and receive leading questions.

Log in to www.Gradescope.com with your UCRNetID@ucr.edu email to submit your worksheet.

Instructions for clear submissions. If you can, write on the worksheet. If you cannot, then write your solutions to page 1 of the worksheet on one paper and your solutions to page 2 of the worksheet on a second paper, clearly labeling each question. **Scan** your work with a scanner or (free) scanning app to **pdf** and upload it to Gradescope. **Your submission should be clear, easy to read, no shadows with each of your pages submitted to the correct page on Gradescope.** If it is not, then resubmit. There is a 2 point penalty for unclear submissions. This worksheet is **15** points.

Question 1 (3 points) You go for a walk and record how far you walk every few minutes in the following table, where t is the number of minutes you have walked and w is the number of miles you have walked.

t	0	20	40	50
w	0	1.2	2.5	3

(a). (1 point) What is your average speed in the first 20 minutes? In the second 20 minutes ($t = 20$ to $t = 40$)? Include units.

$40 - 20 = 20$

$(20, 1.2)$

$(40, 2.5)$

$\frac{2.5 - 1.2}{40 - 20} = \frac{1.3}{20} \rightarrow 0.065$ miles/minus

(b). (2 points) What is your average speed during the 50 minute walk? Is your speed constant? Justify.

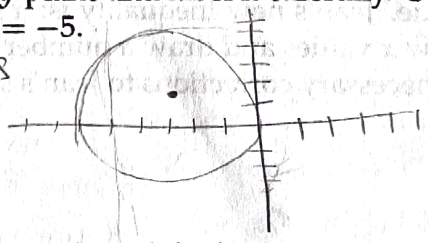
$\frac{3 - 0}{50 - 0} = \frac{3}{50} \rightarrow 0.06$

The average speed during the 50 minute walk is 0.06 miles/minutes. The speed is not constant. when you multiply 0.06 times 20 its 1.20 but when you multiply by 40 its 24 not 2.5 making it not constant.

Question 2 (3 points) Consider a circle centered at $(-3, 2)$ of radius 3.

(a). (1 point) Draw this circle on the xy-plane and label it carefully. Use your picture to determine the number of solutions to $x = -5$.

There would be 2 solutions to $x = -5$



(b). (2 points) What point(s) lie on that circle and the line $y = 1$?

$(x-h)^2 + (y-k)^2 = 3^2$

$(x+3)^2 + (y-2)^2 = 9$

$(x+3)^2 + (1-2)^2 = 9$

$(x+3)^2 + (-1)^2 = 9$

$(x+3)^2 + 1 = 9$

$-1 \quad -1$

$\sqrt{(x+3)^2} = \sqrt{8}$ 4.2

$x + 3 = 2\sqrt{2}$

$-3 \quad -3$

$x = -3 \pm 2\sqrt{2}$

$x = -3 + 2\sqrt{2}$

$-3 - 2\sqrt{2}$

$X=2 \quad Y=-2 \quad Z=-1$

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Question 3 (9 points) DO NOT use a calculator or tool beside a writing utensil. Check your work!

(a). (3 points) Evaluate. Ariel solves this system of equations and gets $x = 2, y = -1, z = 1$. Is Ariel's solution correct? Check by evaluating each equation with Ariel's solution. Explain your answer. If it is not correct, then solve the system.

$$\begin{cases} (a). & 3x + 2y - z = 3 \\ (b). & 2x - 2y + z = 7 \\ (c). & x - y - z = 5 \end{cases}$$

$X=2$
$Y=-1$
$Z=1$

$3x + 2y - z = 3$
$+ \; 2x - 2y + z = 7$
$5x - 0y - 0z = 10$
$\frac{5x}{5} = \frac{10}{5}$

$2 - Y + 1 = 5$

$3 - Y = 5$
$-3 \quad -3$

$\frac{-Y}{-1} = \frac{2}{-1}$

Ariel's solution is not correct. I solved for x by using a & b $Y=-2$ and got 2 then I plugged in 2 to my x in both b & c to find z.

Then I plugged in to c to find y.

$X=2 \quad 2(2)+2y+z=7$
$2 - Y + 1 = 5$
$4 - 2y + z = 7$
$-4 \quad -4$
$-2y + z = 3$
$+ \; (+2y + 2z = 3)2$
$3z = 3$
$\frac{3z}{3} = \frac{3}{3}$

$Z = -1$

(b). (3 points) *Tracy goes to a bakery to buy treats for a birthday party for her twin brothers. Tracy has $30 and wants to spend all of it to buy truffles, waffles, and brownies. A brownie costs twice as much as a truffle. A waffle costs the same amount as a brownie and truffle combined. Tracy buys 6 of each treat. Let t, w, b be the cost of a truffle, waffle, and bagel, respectively.* Set up a system of equations 3 describing this scenario that could be used to determine how much eat treat costs (do not solve). Evaluate each equation at a few values to make sure they are correct.

$2b + t$

$b(bt)$

$6t + 6w + 6b = 30$
$b + 2t = 30$
$w + (b + 2t) =$

T = truffles
w = waffles
b = brownies

(c). (3 points) Change perspectives (rule of four). Jean wants to rewrite $|x + 4| > 2$ without an absolute value. Jean's new inequality is: $x > 6$ or $x < 2$. (a) Is Jean correct? Explain. Evaluate at a few x values and draw a number line to describe the inequality to help Jean, then make any necessary corrections to Jean's solution.

$|x+4| > 2$

$x + 4 > 2$
$-4 \quad -4$
$x > -2$

$x + 4 < -2$
$-4 \quad -4$
$x < -6$

Jean is not correct. when we solve for an inequality we make two equations. The first one is the original and the second one we change the sign. In this case we got -2 & -6 or $X > -2$ & $X < -6$. When we change the sign to solve we change the $<$ $>$ as well.