Day 14/15 Guided Notes

Name: KEY Date: 7/9 - 7/10

OBJECTIVE: I will…

1. determine whether a point satisfies two relationships simultaneously using table and graphs
2. Create a graph that represents 2 linear relationships in context
3. Interpret orally and in writing the point of intersection.

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1. **Determining Point Satisfying Two Relationships at the Same Time**

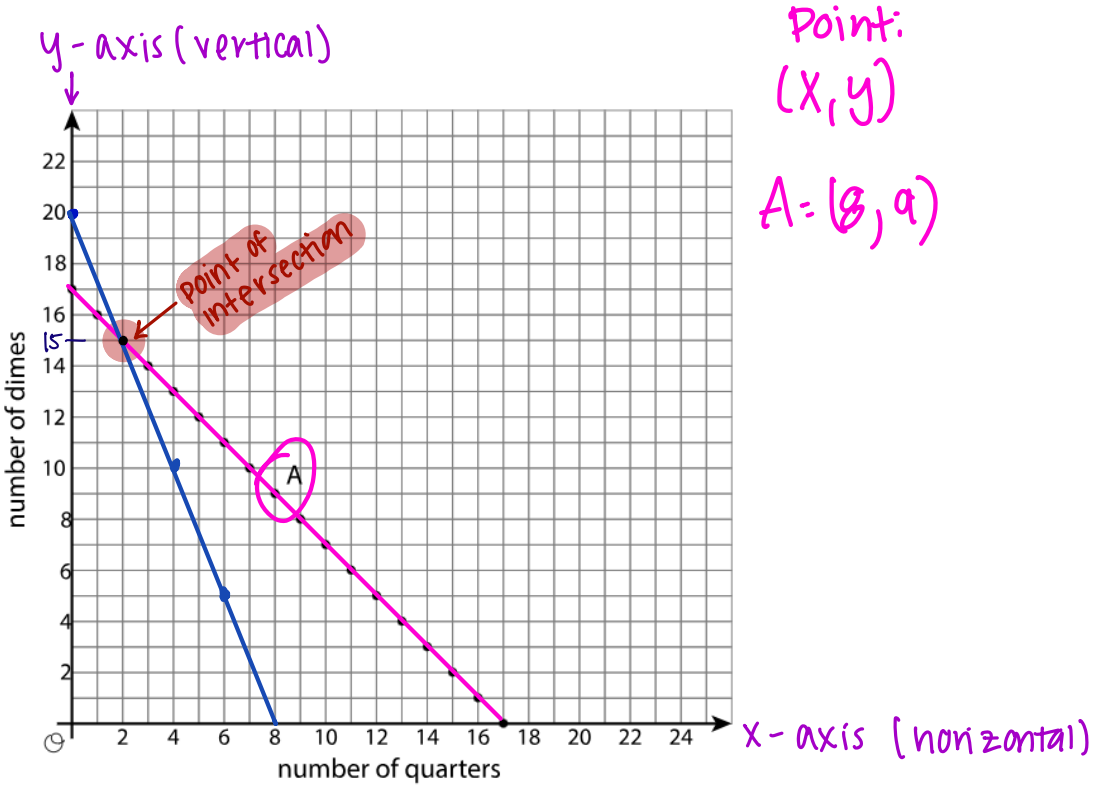
   Jada told Noah she has exactly **$2 worth of quarters and dimes** in her pocket and **17 coins** all together. She asked him to guess how many of each type of coin she has.

   - Goal is to find a common point where two relationships (Total of $2 AND 17 coins altogether) are equal to each other.

a. Table with various combinations of quarters ($0.25) & dimes ($0.10) worth $2 total

Number of Quarters (x)	Number of Dimes (y)
0	20
2	15
4	10
6	5
8	0

Here is a graph of the relationship between the number of quarters and the number of dimes when there are a total of 17 coins.



b. On the same Graph above we have graph: Quarters(x-coordinate) and Dimes(y-coordinate) with total of $2 using the table from page 1.

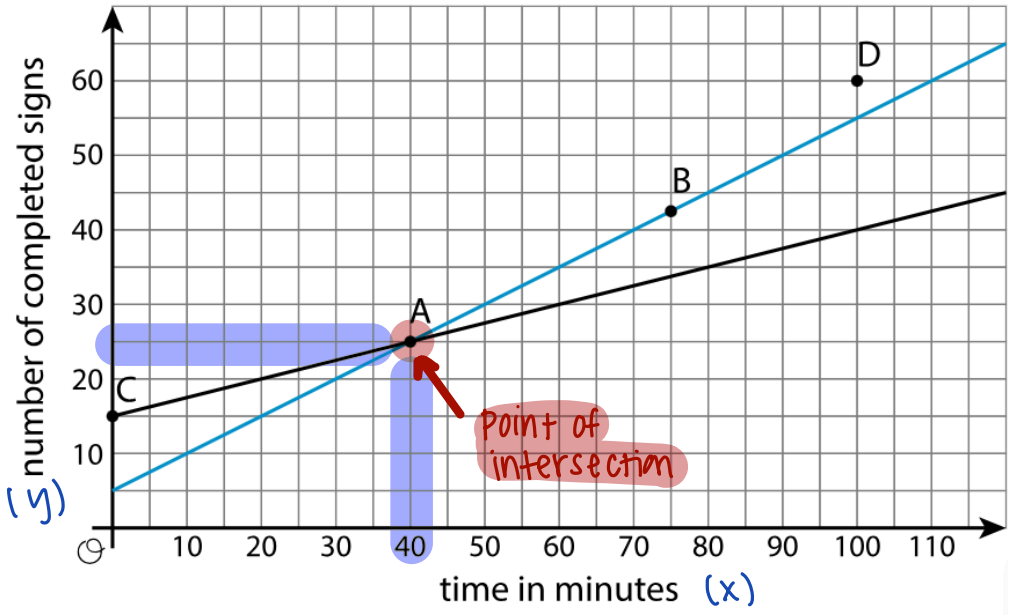
c. After graphing the two separate relationships (Total of $2 & Total of 17 coins) we see...

- The Two Lines Intersect at coordinates (2 , 15)
- They intersect only at one coordinate
    - The only combination where there can be both a total of $2 and total of 17 coins
- Therefore, Jada has 15 (y-axis) Dimes and 2 (x-axis) Quarters total

EX 2: Clare and Andre are making signs for all the lockers as part of the decorations for the upcoming spirit week. Yesterday, Andre made 15 signs and Clare made 5 signs. Today, they need to make more signs. Each person's progress today is shown in the coordinate plane:

Clare: Black line

Andre: Blue line



Based on the lines, mark the statements as true or false for each person.

↳ For each case, pay close attention to the linear graph of each person!

point	what it says	Clare	Andre
A	At 40 minutes, I have 25 signs completed.	T	T
B	At 75 minutes, I have 42 and a half signs completed.	F	T
C	At 0 minutes, I have 15 signs completed.	T	F
D	At 100 minutes, I have 60 signs completed.	F	F

The point that is true for BOTH Andre and Clare is point A.

- Therefore.... At 40 (x) minutes, BOTH Andre AND Clare will have 25 (y) signs completed.

PRACTICE PROBLEMS

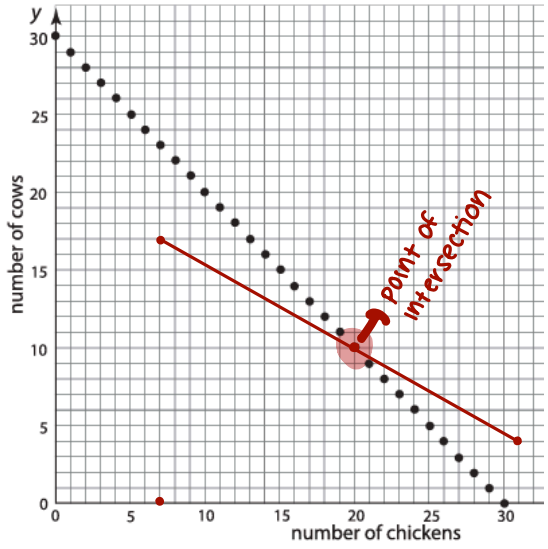
1. A farm has chickens and cows. All the cows have 4 legs and all the chickens have 2 legs. All together, there are **82 cow and chicken LEGS** on the farm.
   a. **Fill Table: combinations of chickens and cows to get 82 total legs.**

      [HINT: Make sure to multiply 4 to the number of cows and 2 to the number of chickens since there are total of 82 cow and chicken LEGS]

Number of chickens (x)	Number of Cows (y)
35	3
step 1: $7 \times 2 = 14$ → step 2: $82 - 14 = 68$ ÷ step 3: $4 = 17$	
21 ← step 3: $42 \div 2 = 21$ ← step 2: $82 - 40 = 42$ ← step 1: $10 \times 4 = 40$	
19	11
31	5

The farm also has a total of **30 animals** (chickens and cows combined). The graph below shows possible combinations of chickens and cows adding up to 30 animals.

a. Plot coordinates from the above table for combinations to get 82 cow/chicken legs



b. At what coordinate do the two lines intersect? (19 , 11)

c. If the farm has 30 animals, AND there are 82 chicken/cow legs altogether, how many chickens and how many cows could the farm have?

Chickens: 19

Cows: 11

2. Angelo has $11 and begins saving $5 each week toward buying a new phone. At the same time that Angelo begins saving, Jazlynn has $60 and begins spending $2 per week on supplies for her art class.

Angelo's Money = $11 + 5x$ Jazlynn's Money = $60 - 2x$

Number of Weeks (x)	Amount of Money (y)	Number of Weeks (x)	Amount of Money (y)
0	11	0	60
1	16	1	58
3	26	3	54
5	36	5	50
7	46	7	46
9	56	9	42

$11+5(1)=16$ $= 60-2(1)$

$11+5(3)=26$ $= 60-2(3)$

a. Is there a week when both Angelo and Jazlynn have the same amount of money? If so, please explain your thinking.

↳ yes, as shown on the table, at week 7, both Angelo and Jazlynn have $46 (same amount).

b. How much money do both have at that time?

↳ $46.

* Assign in class for group presentations

DAY 15 PROMPTS:

1. Chris is assembling tables and starts with 2 tables, adding 3 tables each week. Simultaneously, Jamie is disassembling chairs, starting with 50 chairs and disassembling 4 chairs each week. Is there a week when the number of tables Chris has equals the number of chairs Jamie has left, and what is that number?
2. An animal shelter has 15 dogs and receives 2 more dogs every week. At the same time, they have 60 cats and adopt out 5 cats each week. Is there a week when the number of dogs equals the number of cats, and what is that number?
3. A classroom starts with 25 students and gains 3 new students each month. Meanwhile, another classroom starts with 80 students and loses 5 students each month. Is there a month when both classrooms have the same number of students, and what is that number?
4. One plant is 10 cm tall and grows 4 cm every week. Another plant is 50 cm tall but loses 2 cm every week due to trimming. Is there a week when both plants are the same height, and what is that height?
5. A tow[illegible]er t[illegible] ho[illegible] 1000 liters of wat[illegible]nd is refilled by 200 liter[illegible]day, [illegible] tanks s[illegible] w[illegible]3000[illegible]rs but is used up at a[illegible]te of [illegible]li[illegible]. I[illegible]ere[illegible]ien both tanks have [illegible]e a[illegible]unt of water, and wh[illegible]s that amount?

SKIP