

Day 14/15 Guided Notes

Name: KEY

Date: 7/9-7/10

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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.

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.

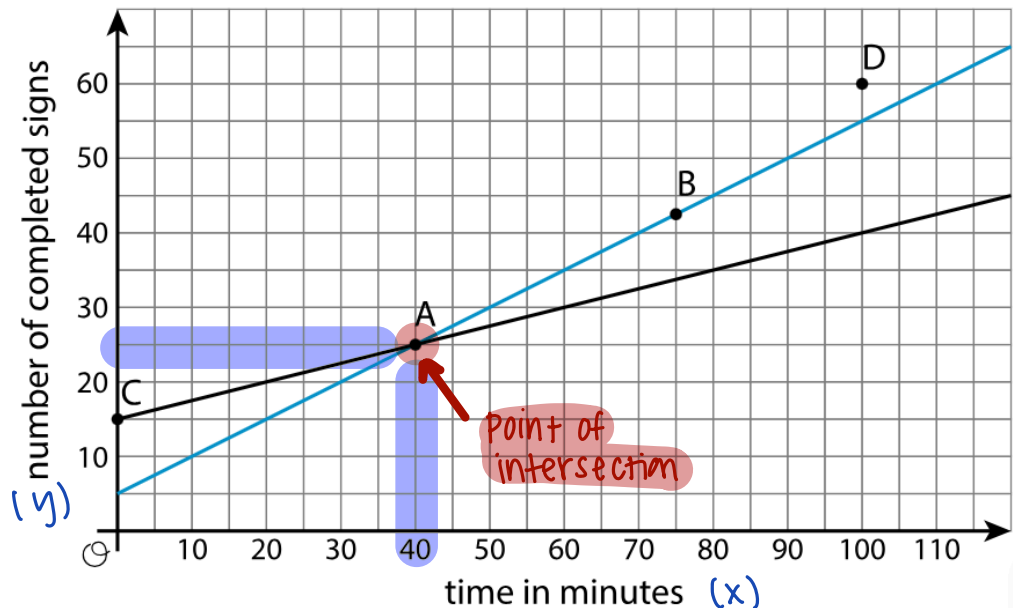
- a. Table with various combinations of quarters (\$0.25) & dimes (\$0.10) worth \$2 total

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

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.

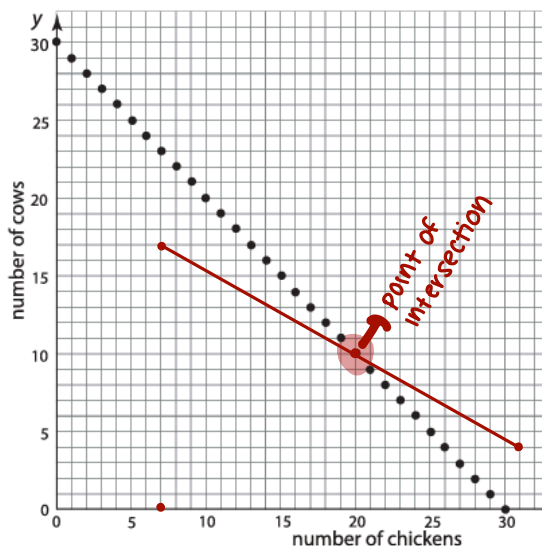
a. Fill Table: combinations of chickens and cows to get 82 total legs.

[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 |
| $\begin{array}{l} \text{Step 1: } 7 \times 2 = 14 \rightarrow \text{Step 2: } 82 - 14 = 68 \rightarrow \text{Step 3: } 68 \div 4 = 17 \end{array}$ | |
| 21 | 11 |
| $\begin{array}{l} \text{Step 3: } 42 \div 2 = 21 \leftarrow \text{Step 2: } 82 - 40 = 42 \leftarrow \text{Step 1: } 10 \times 4 = 40 \end{array}$ | |
| 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.

$$\text{Angelo's Money} = 11 + 5x$$

$$\text{Jazlynn's Money} = 60 - 2x$$

| 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 |

- 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 presentations⁶

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 toy water tank has 1000 liters of water and is refilled by 200 liters every day. Another tank starts with 3000 liters but is used up at a rate of 1000 liters every day. Is there a day when both tanks have the same amount of water, and what is that amount?

SKIP