Name: Answer Key Period: ____

U4 Day 5 Notes: Graphing & Comparing Real World Linear Systems

A-REI.11: I can explain why the x-coordinate of the points where the graphs of the equations y=f(x) and y=g(x) intersect are solutions of the equation f(x)=g(x) and find the solutions approximately.

1. The equations $5x + 2y = 40$ and $3x + 2y = 36$ represents the money collected from school concert ticket sales during two class periods. If x represents the cost for each adult ticket and y represents the cost for each student ticket, how many of each ticket would they have to sell to raise the same amount of money?

$5x+2y=40$

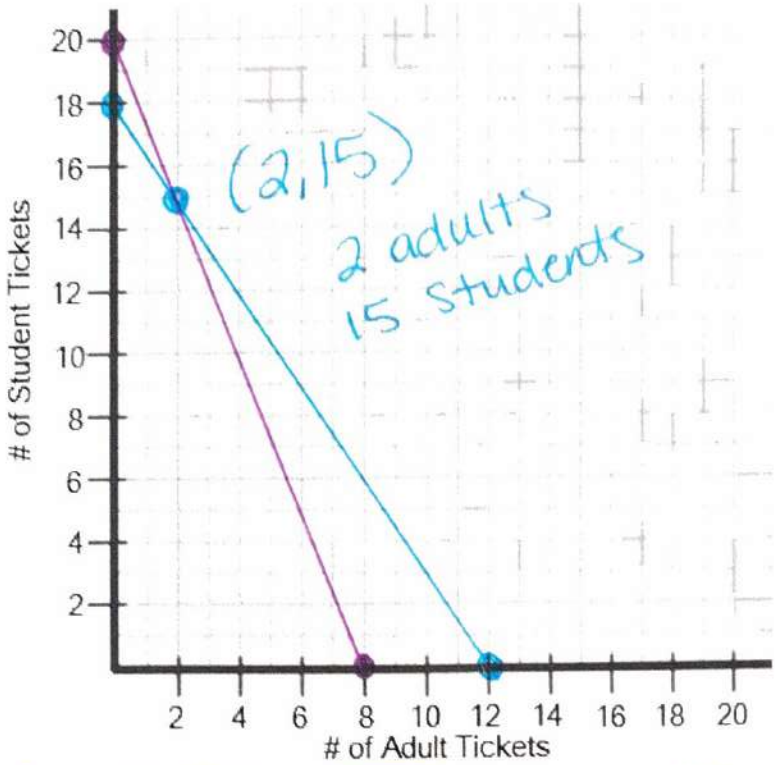
x-int: $\frac{5x}{5}=\frac{40}{5}$, $x=8$

y-int: $\frac{2y}{2}=\frac{40}{2}$, $y=20$

$3x+2y=36$

x-int: $\frac{3x}{3}=\frac{36}{3}$, $x=12$

y-int: $\frac{2y}{2}=\frac{36}{2}$, $y=18$



2. Michael breeds chickens and ducks. Last month, he sold 3 chickens and 2 ducks for $24. This month, he sold 2 chickens and 6 ducks for $30. How much does a chicken cost and how much does a duck cost?

x = chickens y = ducks

$3x+2y=24$

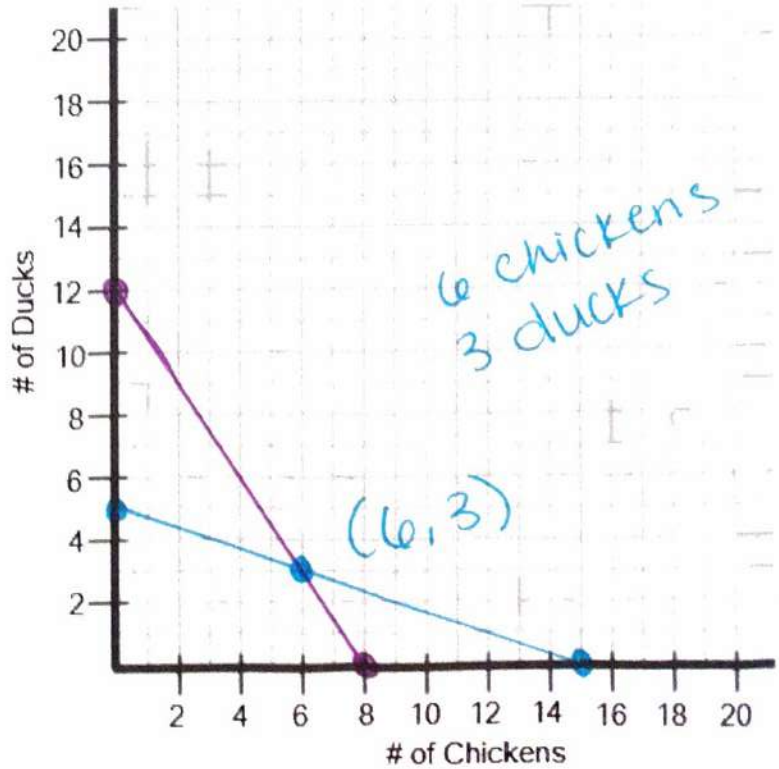
x-int: $\frac{3x}{3}=\frac{24}{3}$, $x=8$

y-int: $\frac{2y}{2}=\frac{24}{2}$, $y=12$

$2x+6y=30$

x-int: $\frac{2x}{2}=\frac{30}{2}$, $x=15$

y-int: $\frac{6y}{6}=\frac{30}{6}$, $y=5$



3. On Monday, a chef made 2 lemon meringue pies and 1 chocolate souffle, and used a total of 10 eggs. On Tuesday, the same chef made 3 lemon meringue pies and 4 chocolate souffles, and used a total of 30 eggs. How many pies and souffles would the chef have to make in order to use the same number of eggs?

x = lemon pie y = chocolate

$2x + 1y = 10$

x-int

$\frac{2x}{2} = \frac{10}{2}$

$x = 5$

y-int

$y = 10$

$3x + 4y = 30$

x-int

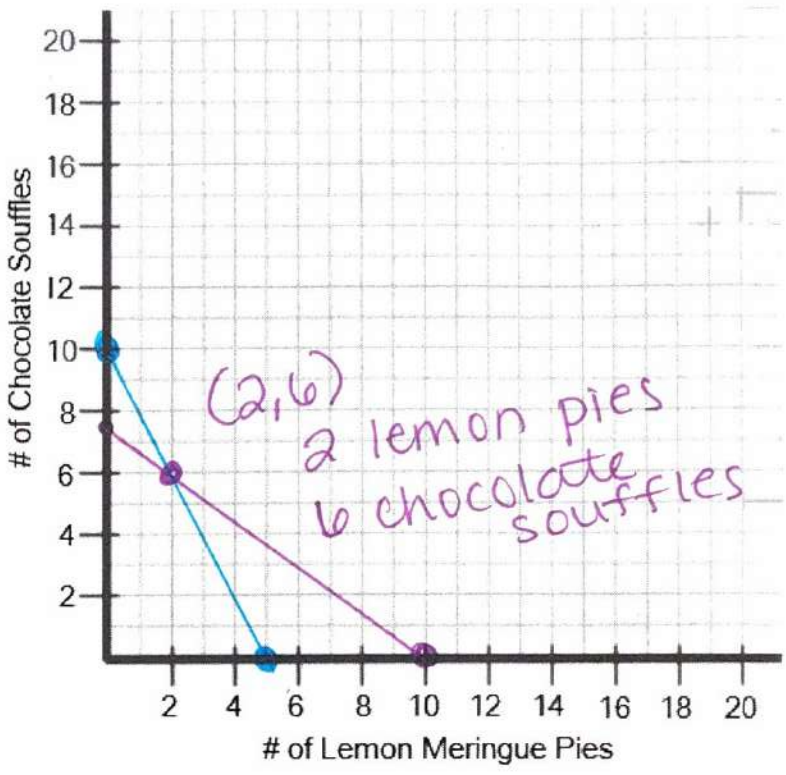
$\frac{3x}{3} = \frac{30}{3}$

$x = 10$

y-int

$\frac{4y}{4} = \frac{30}{4}$

$y = 7.5$



4. The state fair is a popular field trip destination. This year the senior class at High School A and High School B both planned trips there. The senior class at High School A had 2 vans and 1 buses of students, totaling 14 students. High School B had a total of 30 students, and used 2 vans and 3 bus. How many vans and buses would it take to hold the same number of students?

x = vans y = bus

$2x + y = 14$

x-int

$\frac{2x}{2} = \frac{14}{2}$

$x = 7$

y-int

$y = 14$

$2x + 3y = 30$

x-int

$\frac{2x}{2} = \frac{30}{2}$

$x = 15$

y-int

$\frac{3y}{3} = \frac{30}{3}$

$y = 10$