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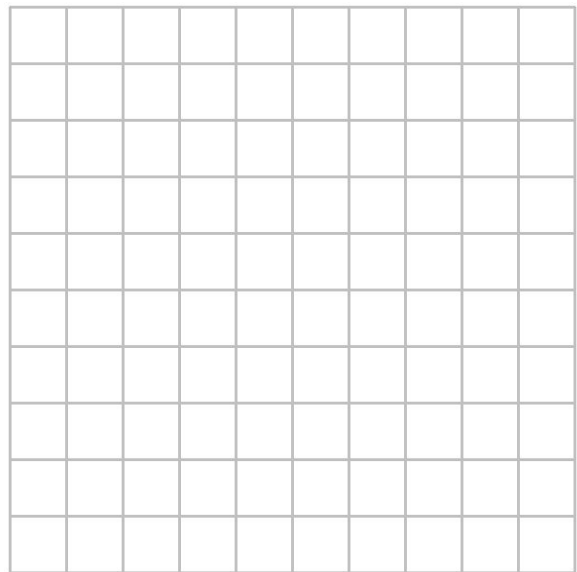
# Solving Systems of Linear Equations

## Extra Practice - Math 10 - Chapter 8,9

Garner wants to compare the growth rates of calves being fed different feed. He hires Francis to quarantine two groups of cows so that he can control what they eat. Group A starts out weighing an average of 110 kg and over the course of 21 days, weighs 122 kg. Group B starts out weighing an average of 100 kg and over the same 21 days ends up weighing 120 kg.

- A) Which set of cows has the faster growth rate?
- B) What is that rate /month (30 days)?
- C) Graph both lines.
- D) Clearly show the intersection point.
- E) What will the cows weigh at slaughter season? (5 months from now).

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Two taxis travel the same route from the airport. One taxi is 6 km from the airport and has a fuel economy of 20 km/L. The other taxi is just leaving the airport and uses 5 L of fuel for every 100 km travelled.

- A) Create a system of linear equations relating the distance travelled ( $y$  kilometers) to the amount of fuel used ( $x$  litres) for each taxi
- B) Explain how the number of solutions to the system relates to the travel of the taxis.

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Solve:

$$3x + 2y = 6$$

$$y - 6 = 2x$$

On a school ski trip the cost for 1 teacher and 18 students is \$390. The cost for 3 teachers and 25 students is \$590. What is the cost for an individual teacher and student? (expect the cost of the teacher ticket and the student ticket to be different)

Solve via substitution:

$$4x + 5y = 26$$

$$3x = y - 9$$

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Solve via elimination:

$$5x + 4y = 26$$

$$3x + 2y = 15$$

/2

The sum of two numbers is 20. Twice one number is four more than four times the other. Write a system of linear equations and determine both numbers.

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The perimeter of a rectangular garden is 17 m. Triple the length is 2.46 m longer than 5 times the width.

Sketch and label a diagram. (1)

Create a system of linear equations to determine the dimensions of the rectangle. (1)

Solve the system. (1)

A Tesla model 3 costs roughly \$40,000. A gas powered Chevrolet Cruze costs roughly \$25,000. The Cruze costs about \$0.10 per km to drive. The Tesla costs roughly \$0.01 to drive.

Assume people drive about 20,000 km / year. After how many years would it take for buying the Tesla to make financial sense?

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