

# MA 109: September 12

Linear Functions: Linear Models

## Start of Class

### Instructor Information

Name:

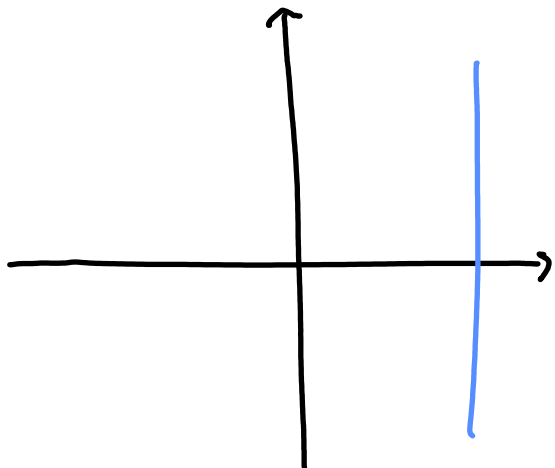
Email:

Office Hours:

## Warm-up Questions

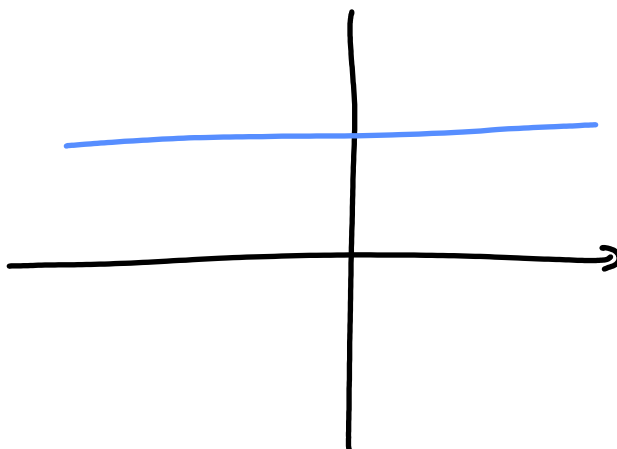
## Notes

**Example:** Write the equation of the vertical line that goes through the point  $(-7, 8)$ .



Vertical

$x = \text{number}$



horizontal

$y = \text{number}$

answer:  $x = -7$

Note: you must include the "x ="  
in order to get full credit

Scientists have been measuring the populations of different animals in a nearby forest since 2000. Based on their data, the populations are best modeled by the equations given in the table below.

Animal	Population	Slope	y-intercept
Wolf	$0.5x + 10$	0.5	10
Lizard	$-2x + 137$	-2	137
Deer	$5x + 462$	5	462
Squirrel	$-x + 532$	-1	532
Fox	$x + 13$	1	13

1. What populations are growing?

Slope tells how the population changes over time, so we want animals with positive slope.

Answer: wolf, deer, fox

2. What population is growing the fastest?

fastest growing is highest slope

Answer: deer

3. What animal had the largest population in 2000?

The study started in 2000, so the population in 2000 is when  $x=0$ , which is the y-intercept

Answer: squirrel

## End of Class

Write a summary of what you learned today:

What questions do you have about the material from today?

What do you need to do between now and the next class meeting?