

## Classifying Systems of Equations

SE4

Consistent Systems

Inconsistent Systems

Independent Systems

Dependent Systems

Inconsistent Systems - no solutions (parallel lines)

same slope, dif y-int

Consistent Systems - at least one solution

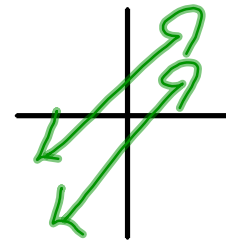
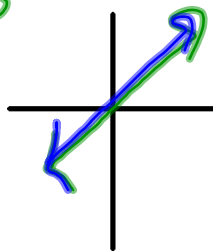
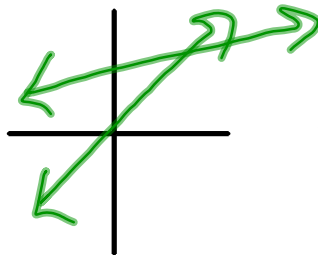
Independent System - exactly one solution (two intersecting lines)

Dependent System - infinitely many solutions (same relationship)

↳ same slope, same y-int. (coincident lines)

dif slope, dif y-int.

Classification	Consistent & Independent	Consistent & Dependent	Inconsistent
# of solutions	exactly one	infinitely many	none
description	different slopes	same slope & same y-intercept	same slope & different y-intercept
graph	intersecting lines	coincident lines	parallel lines



To Classify a system without solving:

- Steps:
- ① Put both equations in slope-intercept form  $(y = mx + b)$
  - ② compare slope  $(m)$  + y-intercepts  $(b)$