

BE-1B WEDNESDAY 2-7-07

AHSGE WORKBOOK

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Homework Review Pg 391
#28, 32

①

Two special cases:

AS USUAL, IF YOUR VARIABLE "GOES AWAY" AND YOU ARE LEFT WITH A FALSE STATEMENT, THE ANSWER IS "NO SOLUTION". How can this be?

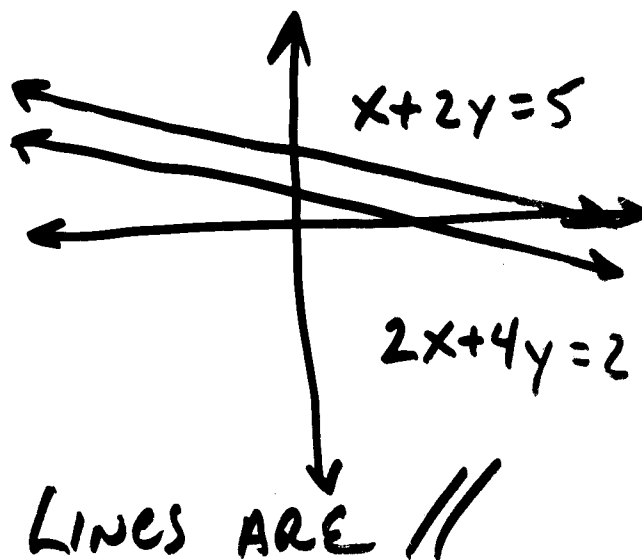
How can 2 lines NOT SHARE ONE POINT?

$$\begin{cases} x + 2y = 5 & \xrightarrow{(-2)} -2x - 4y = -10 \\ 2x + 4y = 2 & \rightarrow 2x + 4y = 2 \end{cases}$$

$$0 + 0 \neq -8$$

NO SOLUTION

$$\begin{aligned} x + 2y &= 5 \\ 2y &= -x + 5 \\ y &= -\frac{1}{2}x + \frac{5}{2} \\ \hline 2x + 4y &= 2 \\ 4y &= -2x + 2 \\ y &= -\frac{2}{4}x + \frac{2}{4} \\ y &= -\frac{1}{2}x + \frac{1}{2} \end{aligned}$$



(2)

WHAT IF YOUR VARIABLE "GOES AWAY" AND YOU ARE LEFT WITH A TRUE STATEMENT?

Answer is All Real Numbers

BUT HOW CAN 2 LINES MEET AT AN INFINITE NUMBER OF POINTS?

$$\begin{cases} 2x + 2y = -8 \\ y = -x - 4 \end{cases}$$

$$\begin{aligned} 2x + 2(-x - 4) &= -8 \\ 2x - 2x - 8 &= -8 \end{aligned}$$

$$\boxed{-8 = -8}$$

TRUE, ALL REALS

$$2x + 2y = -8$$

$$\frac{2y}{2} = \frac{-2x - 8}{2}$$

$$y = -x - 4$$

THEY ARE THE SAME LINE! THEY SHARE AN ∞ NUMBER OF POINTS.