

Two-Variable Linear Systems

Section 7.2

Solve the Following Systems of Equations

$$2(1) - 3y = 7$$

$$2x - 3y = 7$$

$$5x + 3y = 0$$

$$7x = 7$$

$$x = 1$$

$$(1, -\frac{5}{3})$$

$$-3y = 5$$

$$y = -\frac{5}{3}$$

$$3(1) + 4(2) = 11$$

$$3x + 4y = 11$$

$$-2(x + 2y) = (5)(-2)$$

$$-2x - 4y = -10$$

$$x = 1$$

$$(1, 2)$$

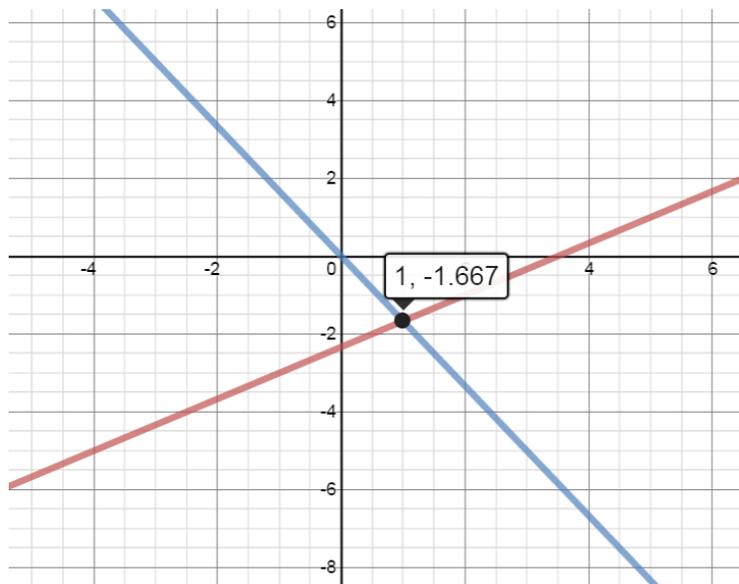
$$1 + 2y = 5$$

$$2y = 4$$

Three Possibilities – 1 solution, no solution, infinite number of solutions

$$2x - 3y = 7$$

$$5x + 3y = 0$$



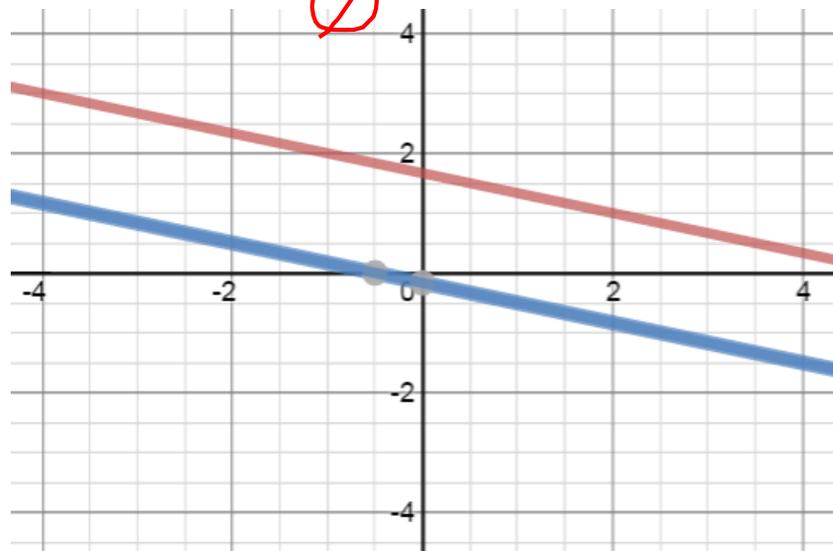
$$2(x + 3y) = (5)2$$

$$-2x - 6y = 1$$

$$\underline{2x + 6y = 10}$$

$$0 = 11$$

\emptyset



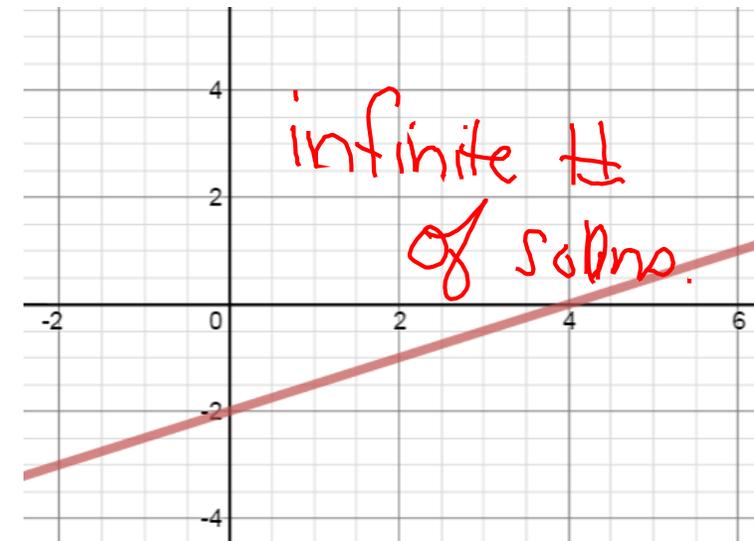
$$4(.25x - .5y) = (1)4$$

$$-x + 2y = -4$$

$$\underline{x - 2y = 4}$$

$$0 = 0$$

infinite #
of solns.



How many rentals, how many sales?

The Interview generated roughly \$15 million in online sales and rentals during its first four days of availability, Sony Pictures said on Sunday. Sony did not say how much of that total represented \$6 digital rentals versus \$15 sales. The studio said there were about two million transactions over all. *Michael Cieply, New York Times*

$$-6(r + s) = (2,000,000)(6)$$

$$6r + 15s = 15,000,000$$

$$\underline{-6r - 6s = -12,000,000}$$

$$9s = 3,000,000$$

$$s = 333,333$$

$$r = 1,666,667$$



While working late to meet a yearbook deadline, you and a friend make a food run to Chick-fil-A. You buy 3 regular chicken sandwiches and 2 spicy chicken sandwiches for \$15.47. Your friend gets 1 regular and 5 spicy chicken sandwiches for \$19.24. How much should those who ordered regular and those who ordered spicy pay for their sandwiches?

$$\begin{array}{r}
 3r + 2s = 15.47 \\
 + \quad -3(1r + 5s) = (19.24)(-3) \\
 \hline
 -3r - 15s = -57.72 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 -13s = -42.25 \\
 s = \$3.25
 \end{array}$$

$$\begin{array}{r}
 3r + 2(3.25) = 15.47 \\
 3r + 6.5 = 15.47 \\
 3r = 8.97 \\
 \frac{3r}{3} = \frac{8.97}{3}
 \end{array}$$

$$r = 2.99$$



Section 7.2 p. 484: 13-19 odd, 43-53 odd