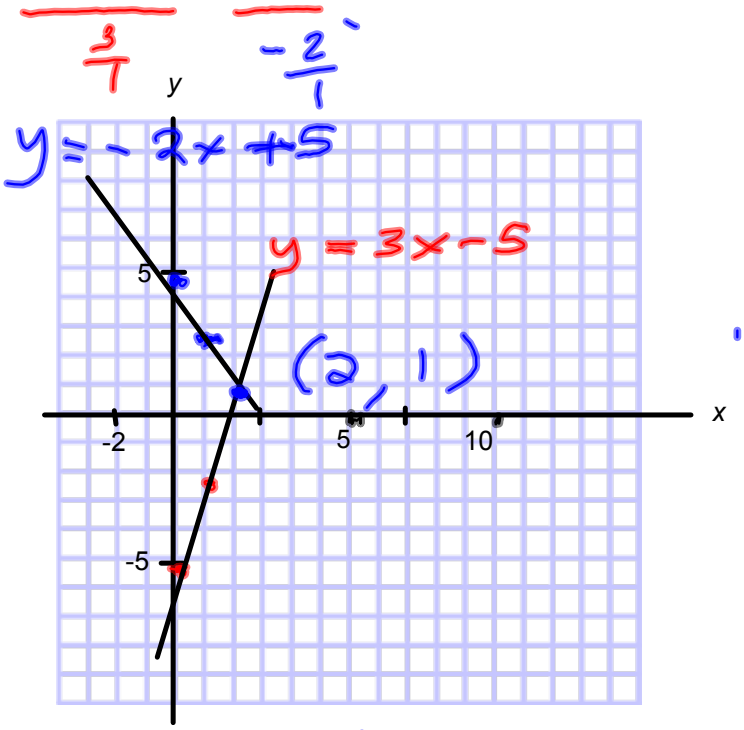
Lesson 4: Solving Linear Systems Graphically (finding the point of intersection)

By the end of this lesson you should be able to use a graph of two lines to find the solution to a pair of linear equations (be able to find a POI).

We can solve a system of linear equations by graphing the equations on the same axes (same graph). The ordered pair (x,y) that is found where the two lines cross is called the point of intersection and it gives the SOLUTION to the system.

Example 1: Solve by graphing the system

Solve y = 3x – 5 and y = -2x + 5 by graphing to find the point of intersection (POI)



∴ The POI is (2, 1)

Check your solution: (2, 1)

y = 3x – 5

LS:	RS:
y	3x – 5
1	3(2) – 5
1 = 1 ✓	

y = -2x + 5

LS:	RS:
1	-2(2) + 5
1 = 1 ✓	

Example 2: Solve by graphing

Holly wants to rent a van to move her belongings to university. Hertz charges $49.95 plus $3.00/km. Enterprise charges $55.00 plus $2.00/km.

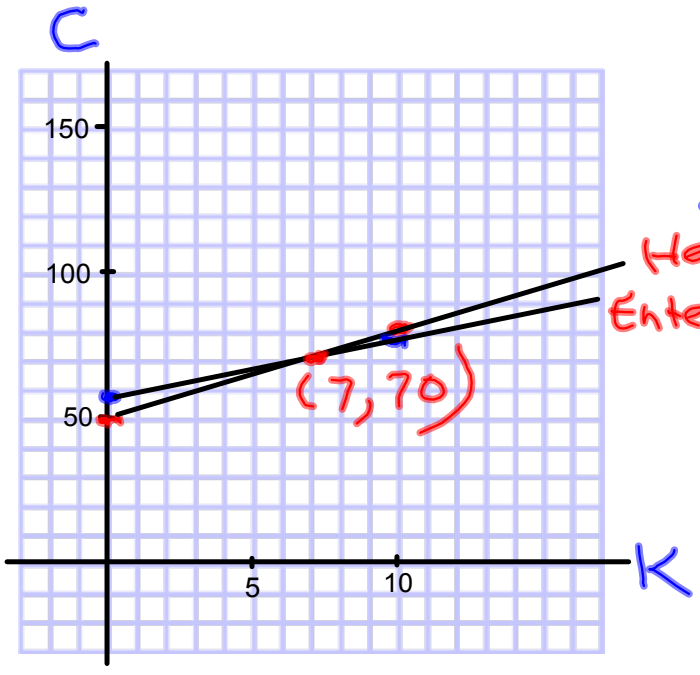
let C = cost let K = km

Write an equation for each situation:

H. 1) $C = 3K + 49.95$

E. 2) $C = 2K + 55.00$

Graph the equations below:



1) $C = 3K + 49.95$

2) $C = 2K + 55.00$

Hertz

Enterprise

(7, 70)

$\frac{3}{1} = \frac{30}{10}$

Which rental company would be the best choice for Holly?