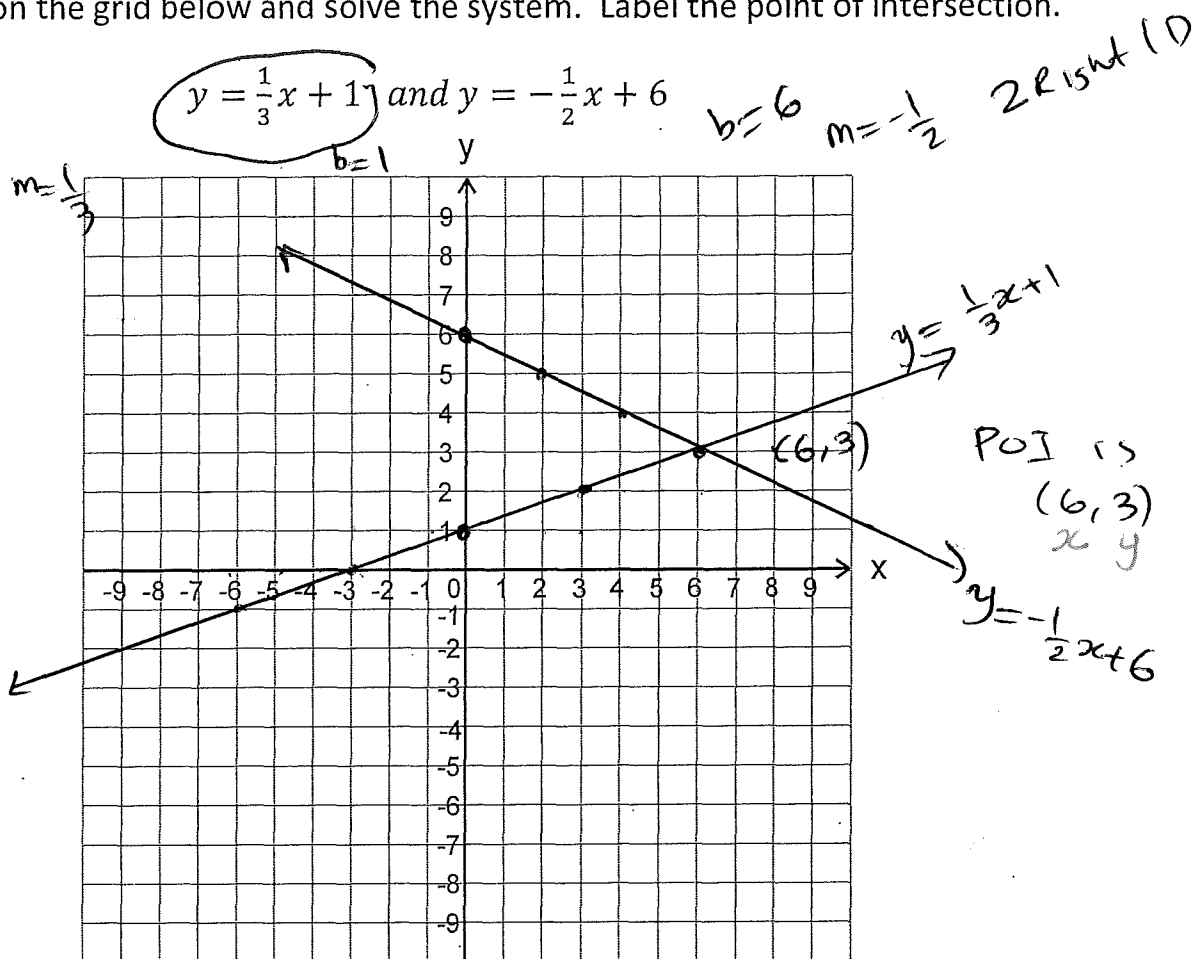


6.3: Point of Intersection (POI)

A group of lines studied together is called a system of equations.

To solve the system, we find the Point of Intersection (POI)

Plot the two lines on the grid below and solve the system. Label the point of intersection.

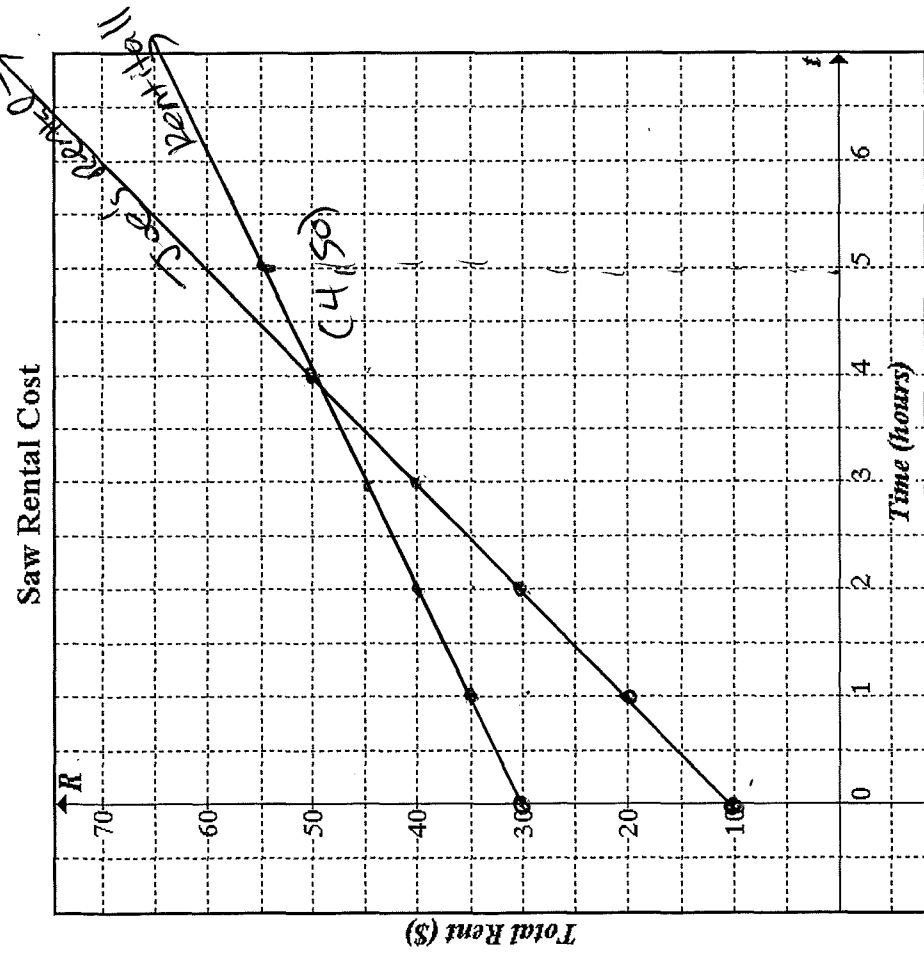


LS	RS	Verify your solution using LS=RS.		
y	$\frac{1}{3}x + 1$	y	$\frac{1}{2}x + 6$	$y = \frac{1}{3}x + 1$
3	$\frac{1}{3}(6) + 1$	3	$-\frac{1}{2}(6) + 6$	$y = -\frac{1}{2}x + 6$
	$2 + 1$		$-3 + 6$	
	3		3	
	$LS = RS$		$LS = RS$	$6\left(\frac{1}{3}x + 1\right) = 6\left(-\frac{1}{2}x + 6\right)$ $2x + 6 = -3x + 36$ $2x + 3x = 36 - 6$ $5x = 30 \Rightarrow x = 6$ $\frac{5}{5} \frac{30}{5} \Rightarrow x = 6$ Sub $x = 6$ to find y . $y = \frac{1}{3}(6) + 1 = 3$ \therefore POI is $(6, 3)$
	\therefore POI is $(6, 3)$			\therefore POI is $(6, 3)$

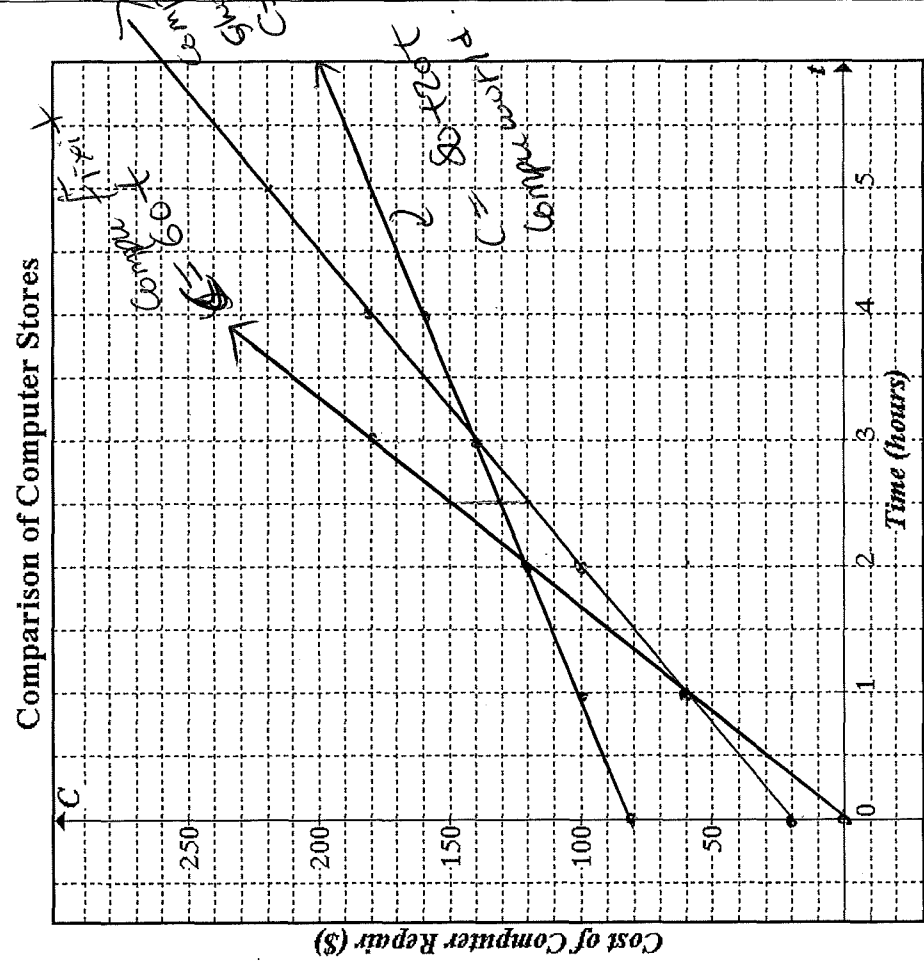
Mathematics 9 Break-Even Problems

Date:

Graph all given lines on the grids below using slope & y-intercept, or tables of values in your notebooks. Answer all questions in your notebooks.



- Joe's Rental charges rent for a table saw as given by: $R = 10t + 10$
 Rent-it-all charges rent for a table saw as given by: $R = 5t + 30$
 - Graph both lines on the above grid. Label each line with the rental store's name.
 - If renting a saw for 5 hours, which store is the best choice for the rental and how much is saved by renting there? Rent-it-all is cheaper
 - At what time and rental cost are the two stores equal? This is called the "break-even point" on the graph. $t = 4$ $R = 50$ is the break even point.



- Greg's computer is down again. The three neighbourhood repair shops have changed their prices. Compu-Shoppe now charges a base price of \$20 plus \$40 per hour. Compu-World charges \$80 plus \$20 per hour. Compu-Fixit charges \$60 per hour.
 - Graph all lines and label each line with words and with its equation.
 - What is the best and worst choice for a 2.5 hour repair? How much money is saved by choosing the best? Compu Shoppe is the lowest \$30 less than comp. Fixit
 - Describe in detail how Compu-World's prices compare to the other stores. \hookrightarrow has an initial fee that's high but is the best (lowest cost) for time of 3 hours or more.