Training Header Sheet with Change Log Form

Kentucky Math
Operational

Grade 10
Line Graph Auto Repair Company
MA1020185

Practice Sets

Date	Comments	Version
2.2022	Initial Operational Training Set	Set A

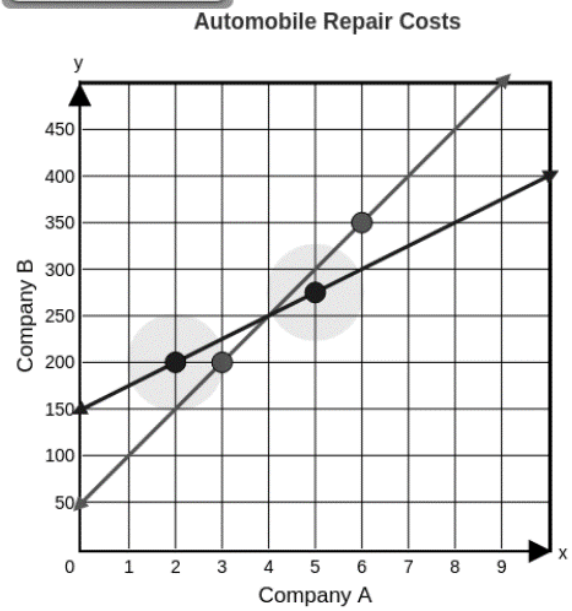
Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

To graph each line, select two points on the coordinate plane. A line will be drawn through the points.

Company A

Company B



Part B

Describe how the equations of the lines on the graph relate to the situation. Include the equations in your descriptions.

Describe how the intersection of the lines on the graph relates to the situation. Include the intersection point in your description.

Enter your descriptions in the space provided.

The equations are $A = 200\,(2)$ and $275\,(5)$

$B = 200\,(3)$ and $350\,(6)$

The intersections of the lines on the graph (4,250) and they relate because company A $200 for 2 hours and company B $200 for 3 hours.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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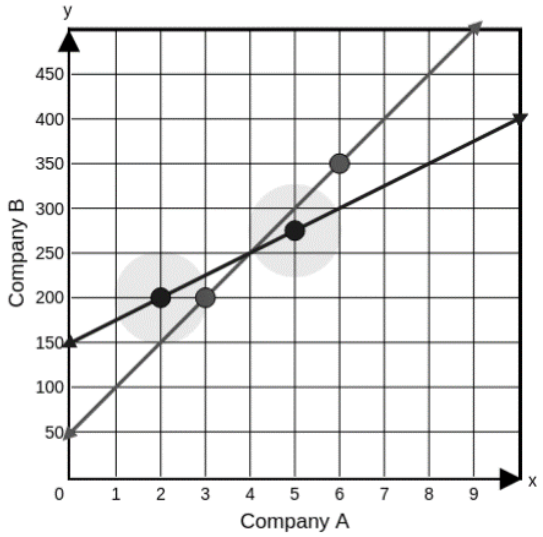
Company A

Company B

Automobile Repair Costs



Part B

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The two companies vary in money owed per hour of work but company A will be less expensive for anything more than 4 hours of work and Company B will be cheaper for anything less than 4 hours of work. Company A has a base fee of 150 dollars and charges 25 dollars per hour after that while Company B has a base fee of 50 dollars but charges 50 dollars per hour of work.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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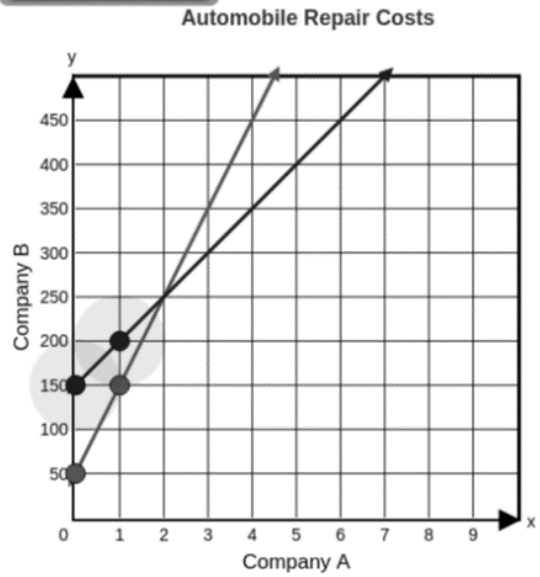
Company A

Company B



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The equations on the lines show you the total cost for work on your car at different total hours of work. $y = 150 + 25x$ shows company a and $y = 50 + 50x$ represents company b.

The itersection point shows the change in which company is more expensive. The intersection point is (2,250) meaning that company b is less expesive when $x < 2$ and more expensive when $x > 2$

Part A

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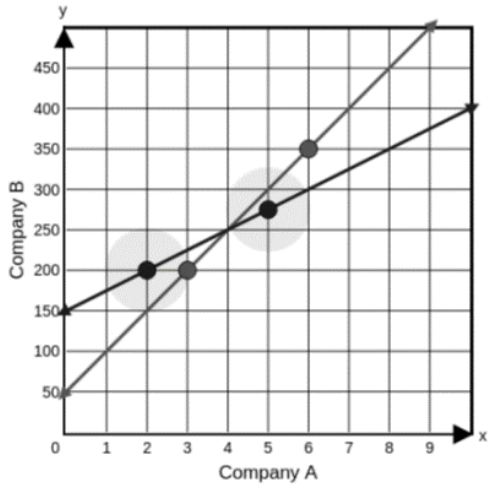
Company A

Company B

Automobile Repair Costs



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So with these grpahs you see the equation of company A with x $25 + 150$, and for company B you see x $50 + 50$. This relalates to the situation by it shows the prices of the 2 companies and from this you can see company B charges less until 4 hours but then Compony A chanrgers less after 4 hours. Its a effeictive way of looking to see the bes tprice for how many hours the car needs to be in the shop. So at 4 hours both companies charge 250 but after you see company B charges more and Company A starts to have a better deal and you save money commpared to company B. But before company B had a better deal and company A was more Expensive.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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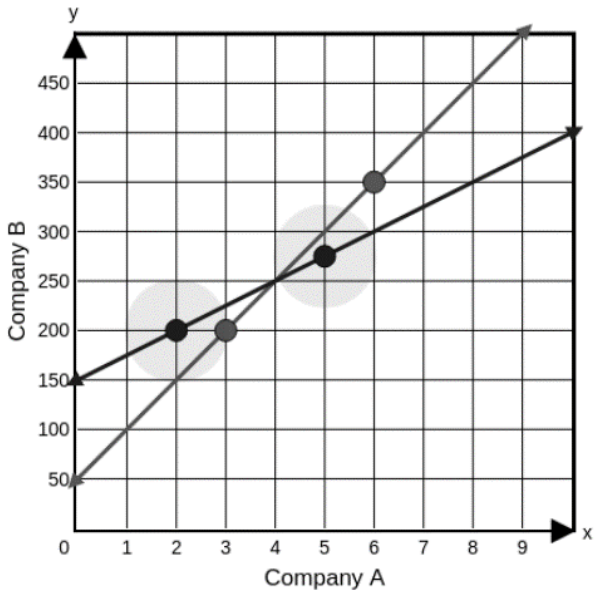
Company A

Company B

Automobile Repair Costs



Part B

Describe how the equations of the lines on the graph relate to the situation. Include the equations in your descriptions.

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the equations show the cost per hour and how they compare when next to eachother

the intersection shows that at 5 hours, the cost of the 2 companies are the same.

Part A

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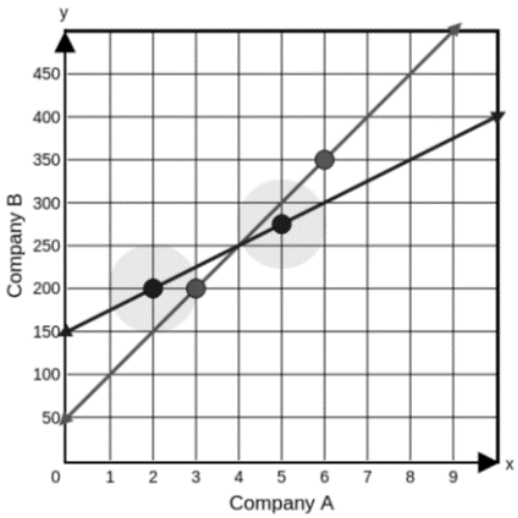
Company B

Automobile Repair Costs



Part B

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The equations of the lines on the graph relate to the situation because they show the steady price increase as the hours increase.

Company $A = y = x + 2$

Company $B = y = x + 1$

The intersection shows where the prices are the same on the graph. Intersection= $(4,250)$

Part A

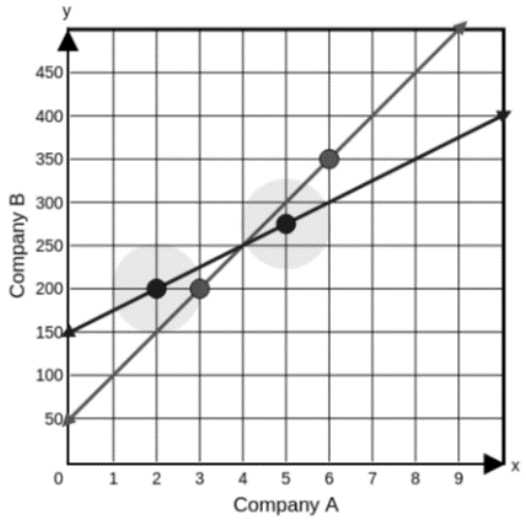
Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

To graph each line, select two points on the coordinate plane. A line will be drawn through the points.

Company A

Company B

Automobile Repair Costs



Part B

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The graphs show the increase in the amount of money payed for every hour worked. For Company A, the slope is 25 becuase the amount payed increases by 25 for every hour worked. (The equation would be $25x + 150$) For Company B, the amount payed increases by 50 dollars for every hour worked. (So the equation would then be $50x + 50$) The point of intersection between the two lines shows where both companies charge the same price for the same amount of hours worked. In this instance, it is four hours worked and a charge of 250 dollars.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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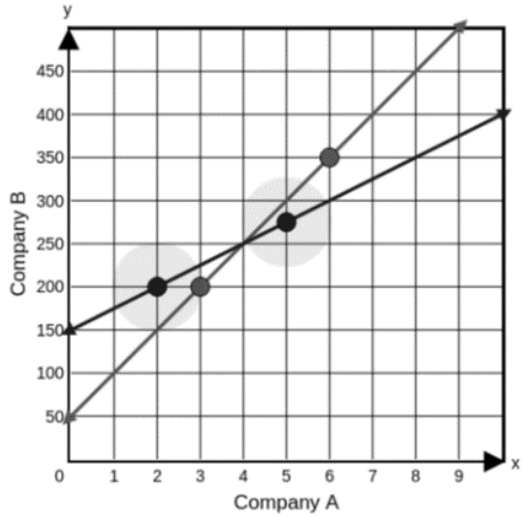
Company A

Company B

Automobile Repair Costs



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The intersection of both lines shows when both companies will charge the same amount of money for the same amount of hours of work. Which would be for 4 hours of work they both charge 250 dollars. The Company A has the equation $y = 25 \times x + 50$ and the Company B has the equation $y = 50 \times x + 150$, they both relate to the situation by showing how much each company charges for every hour of work. By the equation we can see that the Company B charges more money than Company A over the increasing of the hours of work.

Part A

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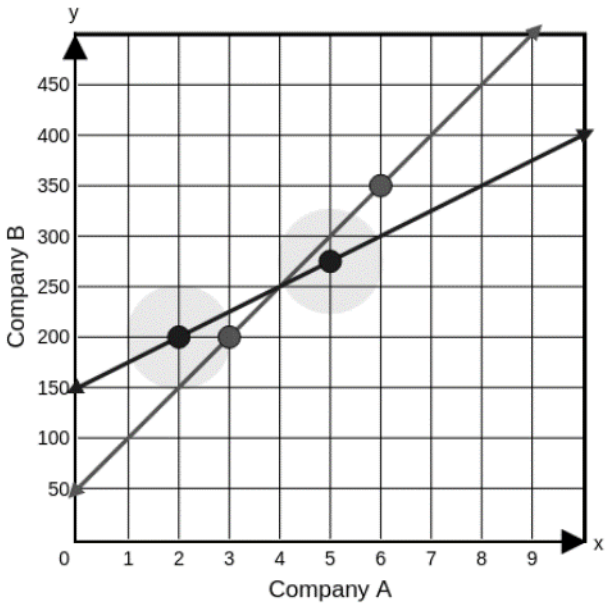
Company A

Company B

Automobile Repair Costs



Part B

Describe how the equations of the lines on the graph relate to the situation. Include the equations in your descriptions.

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Company A is cheaper if you are needing more than four hours of work done.

Part A

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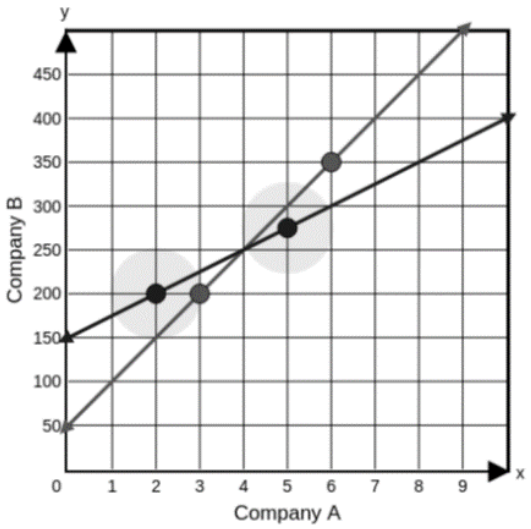
Company A

Company B

Automobile Repair Costs



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The two equations, $(\frac{1}{2}x + 150)$ for company A, and $(x + 50)$ for company B, show their rates for their prices per hour. Each start at a different $Y intercept$, however that doesn't necessarily have a correlation.

Their intersection, (4,250), shows when their prices would overlap for that given time period. In this case, both comapnies would charge $250 for 4 hours of service.

Part A

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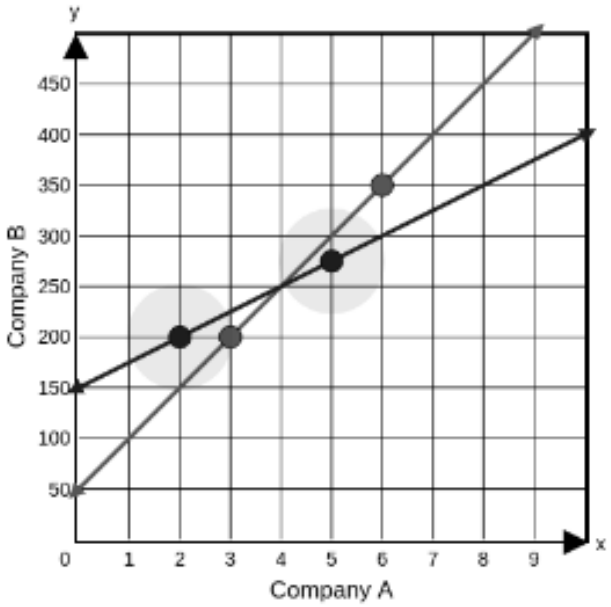
Company B

Automobile Repair Costs



Part B

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Enter your descriptions in the space provided.

Company A has a fee of $150 and the charges $25 per hour. Company B has a starting fee of $50 and charges $50 per hour. For both companies, 4 hours of work will equal $250

Part A

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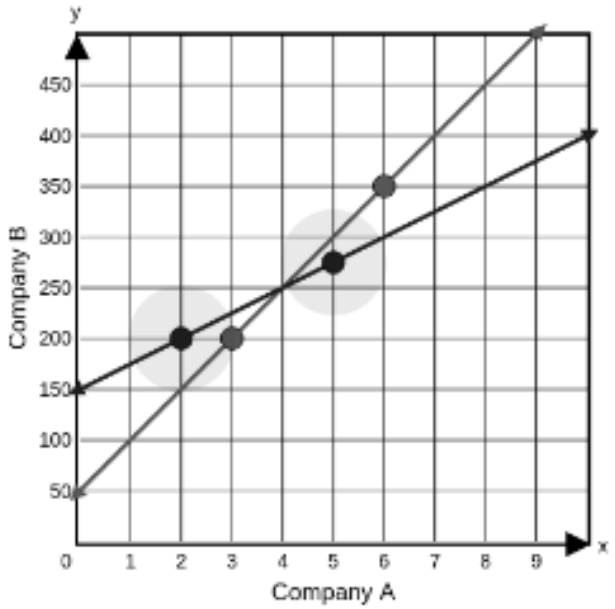
Company A

Company B

Automobile Repair Costs



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Company A is going to be less for any job taking over 4 hours. Company B is going to be less for any job taking less than 4 hours

Part A

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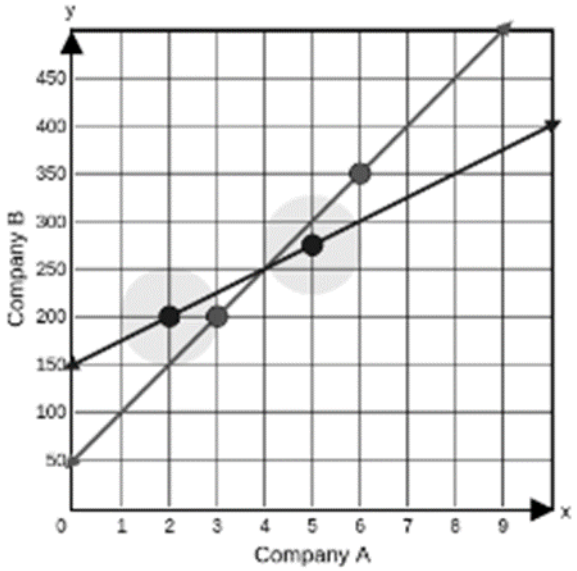
Company B

Automobile Repair Costs



Part B

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The lines on the graph represent the amount of costs per hour of work. For company A, the x axis is hours and the y axis is cost. The equation for A is $y = 150 + 25x$. For company B, the equation is $y = 50 + 50x$. The intersection represents that after four hours of work, both companies charge 250 dollars for a work fee.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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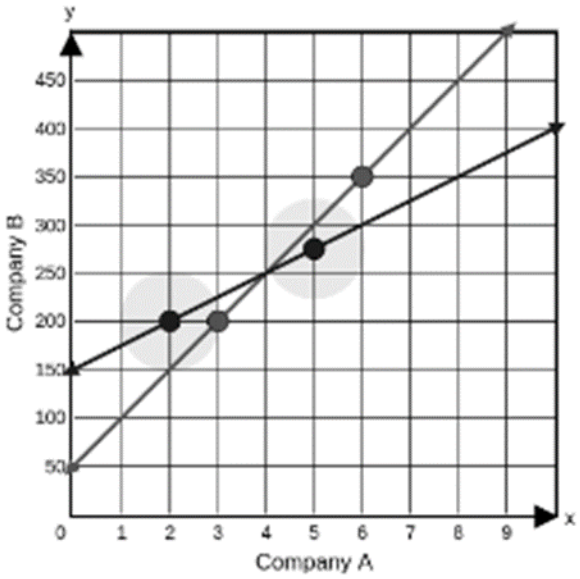
Company B

Automobile Repair Costs



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company A's rate is going up at a consistant rate on the other hand company B has a massive increase in cost as the amount of hours increase.

The intersection of the lines at (4,250), shows an average rate of change for their cost and hour basis.

Part A

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Company B

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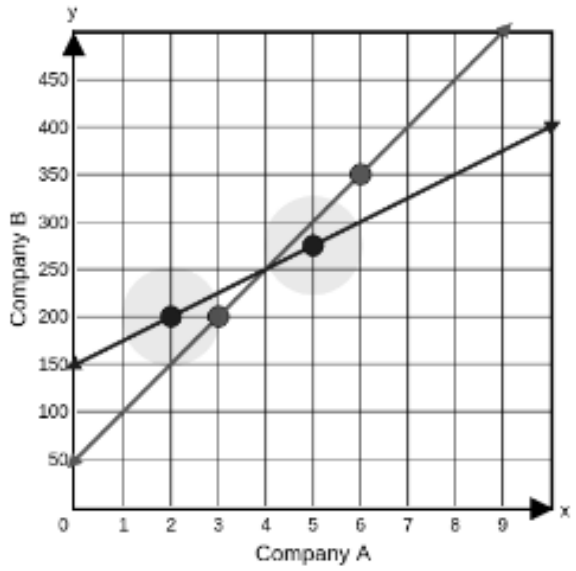

Part B

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Describe how the intersection of the lines on the graph relates to the situation. Include the intersection point in your description.

Enter your descriptions in the space provided.

The equation for Company A is $y = 25x + 150$

The equation for Company B is $y = 50x + 50$

The graph shows that if it take more than 4 hours for the repair, company A is cheaper. If it takes less than 4 hours for the repair, Company B is cheaper. The intersection point on the graph is (4,250). This is the point where the two companies prices are the same.

Part A

Cassidy compares the costs of two different automobile repair companies. Company A charges $200 for 2 hours of work and $275 for 5 hours of work. Company B charges $200 for 3 hours of work and $350 for 6 hours of work. Graph the system of equations that relates the hours of work, x, to the cost, y.

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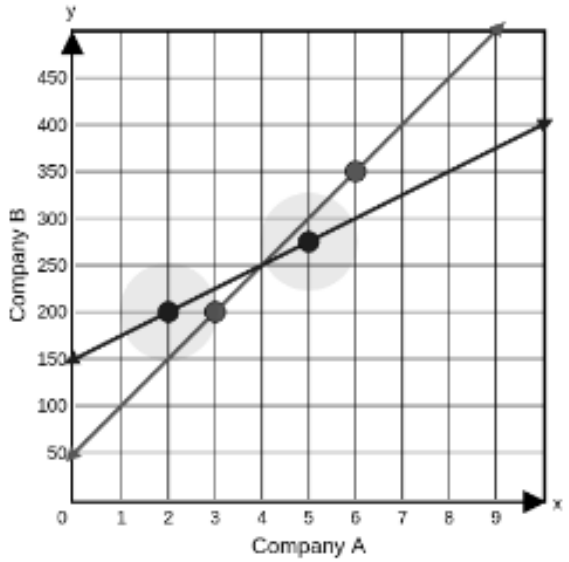
Company B

Automobile Repair Costs



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The equations on the lines on the graph help you determine how much you will spend between two different services. The equation for company a is $y = 25x + 150$ while the equation for company b is $y = 50x + 50$. The equation for company a will save you more money in the long run. At the point (4, 250) the lines intersect but company a's has a lower rate of change.

Part A

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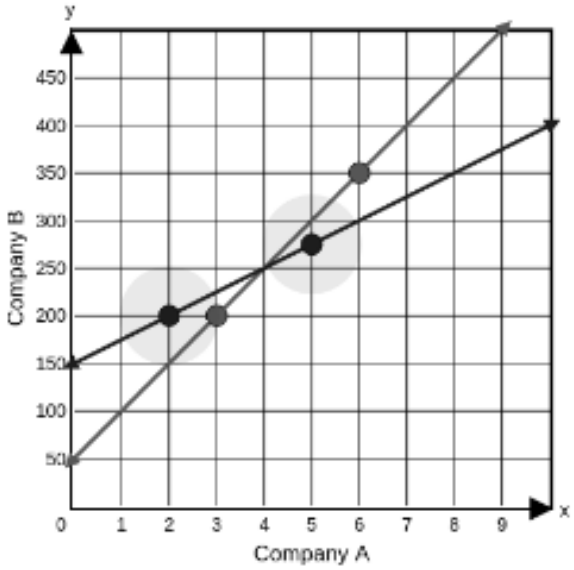
Company B

Automobile Repair Costs



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Describe how the intersection of the lines on the graph relates to the situation. Include the intersection point in your description.

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The equations of the lines relate to the situation by graphing how much you'll get paid per hour at each company, given any time. The equation for Company A is $y = 25x + 150$. The equation for Company B is $y = 50x + 50$. The intersection is at (4, $250). This meaning that at 4 hours of work each company pays the same amount.

Part A

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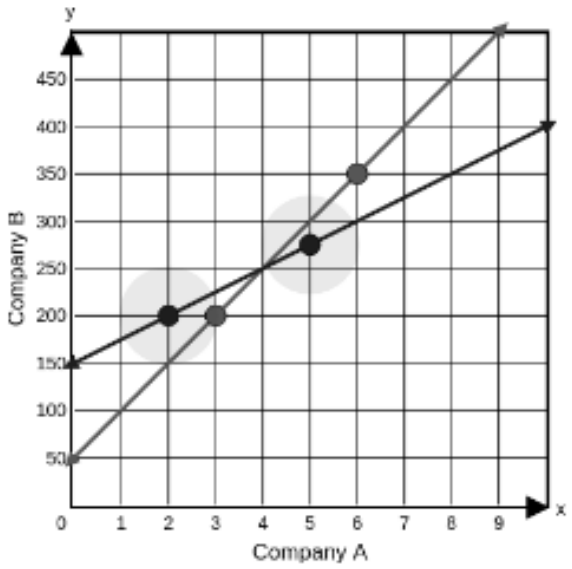
Company A

Company B

Automobile Repair Costs



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Company A's graph is $25x + 150$ and company B's graph is $50x + 50$ which shows that company A charges less per hour but has a higher initial payment while company B has a lower initial payment but a higher cost per hour. The graphs intersect at (4, 250) which means that the companies will both charge 250 dollars for 4 hours of work. It also means that for less than 4 hours of work, company B is cheaper, while for more than 4 hours of work company A is cheaper.

Part A

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Company B

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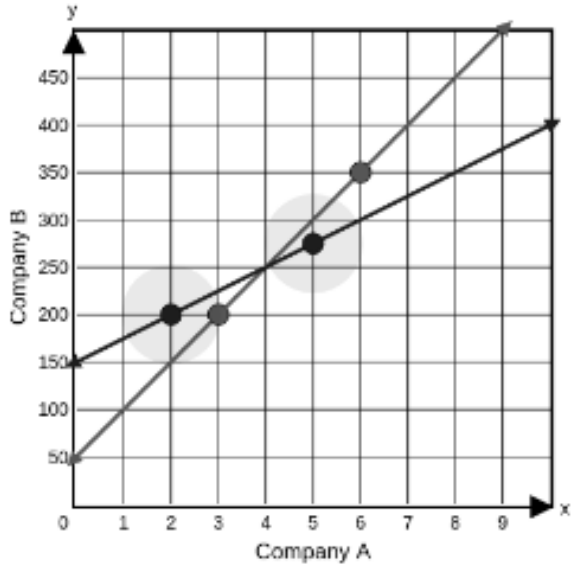

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Describe how the intersection of the lines on the graph relates to the situation. Include the intersection point in your description.

Enter your descriptions in the space provided.

the lines relate because they show how much is charged per hour and the equations are $200 + 2x$ and $200 + 3x$

the intersection point is (4, 250) this shows that 250 would be charged for 4 hours in both company A and B

Part A

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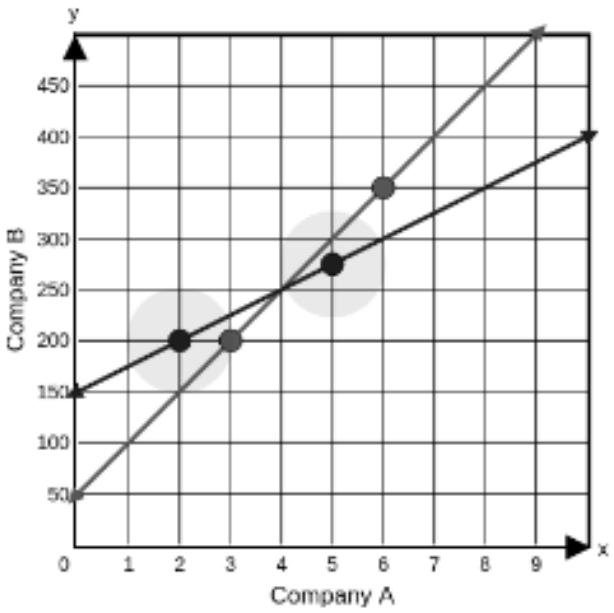

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The equations relate to each company's price per hour rate. The intersection of the points represent when both companies charge the same amount of money for the same work hours.