Name_____ Period_____ Date_____

Using Distance, Time, and Speed Relationships to Solve Linear Systems by Graphing

http://www.nctm.org/standards/content.aspx?id=25037

Recall using the applet of the boy and girl moving between the house and the tree. If you need a refresher on the instructions for controlling movement, please be sure to read them on the applet site.

1. Move the boy back to the tree and move the girl back to the house. Keep both of their speeds at the same 2 steps per "second". Run the applet. How long does it take the boy to reach the house?_____ How long does it take the girl to reach the tree? _____ Explain why the times are the same._____
   What is the equation of the distance the girl is from the house as a function of time? _____ What is the equation for the boy's distance from the house as a function of time? _____What is the point of intersection? _____
   What is the meaning of this point of intersection?_____

2. Reset the applet, but move the girl 10 steps closer to the tree and have the boy move at 4 steps per second. Write an equation for the girl's path. _____ Write an equation for the boy's path. _____ What is the point of intersection for their paths? _____ What is the meaning of this point?_____

3. Now, move the boy to the house and turn him around. The boy, who takes 7 steps per second, gives the girl, who takes 5 steps per second, a 25 step head-start. Who reaches the tree first? _____ Write an equation for the distance the boy is from the house. _____ Write an equation for the distance the girl is from the house. _____ Where do the two lines intersect? _____What is the meaning of the point of intersection of the two lines on the graph?_____
   _____

4. Have the boy start at the house and give the girl a head start of your choosing. Have both of them run at the same speed. You determine what that speed will be. Write the equation for the boy's distance from the house._____ Write the equation of the girl's distance from the house._____ Now run the scenario. What does the graph look like?_____ What is the intersection of the two paths?_____Explain_____
   _____

5. Have the boy and girl both start at the house and run toward the tree at the same speed. You determine what speed you would like them to move. What is the equation for the boy's distance from the house as a function of time?_____What is the equation for the girl's distance?_____What does the graph look like? _____ What is the intersection?_____
   Explain_____