## Party on Worksheet <br> Systems of Inequalities (Level 1)

Name: $\qquad$

1. You are in charge of a fundraiser to earn money for a spring dance. The class decides to hold a chicken BBQ and Bingo. The goal set by student council is to raise at least $\$ 4000$. They hope to raise at least $\$ 3500$ on the chicken BBQ and \$500 on Bingo.

The school is heavily supported by the community which consists of:

- 500 adults
- 350 children
- Not everyone will be able to make it to the fundraiser because of ball games and other community events. So, the number of adult tickets and children's tickets will be less than the numbers listed above

Your goal is to:

- Set the price for adult and children BBQ tickets, and also for adult and children Bingo cards.
- You will sell the same number of children's tickets and adult tickets for both events
- You can always make more money than the goal, but not less. You don't want to disappoint your classmates and their dream for a spring dance.
- Give the actual amount of money you will make for each event based upon the number of tickets you sell. Show the math behind your answer, and elaborate on your reason behind the prices and number of tickets sold.

Open up the Party On Geogebra file, and use it to assist you with finding the best prices for each event. http://www.geogebratube.org/student/m129254
2. Open the Systems of Equations Geogebra file: http://www.geogebratube.org/student/bHWETXSOK\#material/113115

Take turns sliding the pink and blue sliders, and then answer these questions
a. How are the sliders related to each other? What do the $\mathrm{m} 1, \mathrm{~m} 2, \mathrm{~b} 1$, and b 2 represent?
b. How would you adapt the sliders to create a different type of solution to the system of equations?
c. Create a system of equations in which the lines do not cross. What conclusions can you draw from your answer?
d. Can you create of system of equations that has more than one solution? If so, explain how you would go about doing this. If not, explain why you cannot.

## Party on Worksheet <br> Systems of Inequalities (Level 2)

Name: $\qquad$

You are in charge of a fundraiser to earn money for a spring dance. The class decides to hold a chicken BBQ and Bingo. The goal set by student council is to raise at least $\$ 4000$. They hope to raise at least $\$ 3500$ on the chicken BBQ and \$500 on Bingo.

The school is heavily supported by the community which consists of:

- 500 adults
- 750 children
- Not everyone will be able to make it to the fundraiser because of ball games and other community events.

Your goal is to:

- Set the price for adult and children BBQ tickets, and also for adult and children Bingo cards.
- You then need to set a goal of how many tickets of each need to be sold keeping in mind, you will sell the same amount of children and adult tickets for each event.
- You can always make more money than the goal, but not less. You don't want to disappoint your classmates and their dream for a spring dance.
- Give the actual amount of money you will make for each event based upon the number of tickets you sell. Show the math behind your answer, and elaborate on your reason behind the prices and number of tickets sold.

Open up the Party On Geogebra file, and use it to assist you with finding the best prices for each event. http://www.geogebratube.org/student/m129254
2. Open the Systems of Equations Geogebra file: http://www.geogebratube.org/student/bHWETXSOK\#material/113115

Take turns sliding the pink and blue sliders, and then answer these questions
a. How are the sliders related to each other? What do the $\mathrm{m} 1, \mathrm{~m} 2, \mathrm{~b} 1$, and b 2 represent?
b. How would you adapt the sliders to create a different type of solution to the system of equations?
c. Create a system of equations in which the lines do not cross? What conclusions can you draw from your answer?
d. Can you create of system of equations that has more than one solution? If so, explain how you would go about doing this. If not, explain why you cannot.
e. Can you add a third line to your system of equations in which it will share the same solution as the other 2 lines in the system? If so, how would you go about finding the equation of that third line? If not, explain why you cannot.

## Party on Worksheet <br> Systems of Inequalities (Level 3)

Name: $\qquad$

1. You are in charge of a fundraiser to earn money for a spring dance. The class decides to hold a chicken BBQ and Bingo. The goal set by student council is to raise at least $\$ 4000$. They hope to raise at least $\$ 3500$ on the chicken BBQ and \$500 on Bingo.

The school is heavily supported by the community which consists of:

- 300 families with 2 parents and 2 children
- 150 families with one adult and 3 children.
- $1 / 3$ of the children are aged 6 and under. $1 / 3$ of the children are between the ages of 7 and 12 , and the rest are over the age of 13 .
- Not everyone will be able to make it to the fundraiser because of ball games and other community events.

Your goal is to:

- Set the price for adult and children BBQ tickets, and also for adult and children Bingo cards.
- You then need to set a goal of how many tickets of each need to be sold keeping in mind, you will sell the same amount of children and adult tickets for each event.
- You can always make more money than the goal, but not less. You don't want to disappoint your classmates and their dream for a spring dance.
- Give the actual amount of money you will make for each event based upon the number of tickets you sell. Show the math behind your answer, and elaborate on your reason behind the prices and number of tickets sold.

Open up the Party On Geogebra file, and use it to assist you with finding the best prices for each event. http://www.geogebratube.org/student/m129254
2. Open the Systems of Equations Geogebra file: http://www.geogebratube.org/student/bHWETXSOK\#material/113115

Take turns sliding the pink and blue sliders, and then answer these questions
a. How are the sliders related to each other? What do the $\mathrm{m} 1, \mathrm{~m} 2, \mathrm{~b} 1$, and b 2 represent?
b. How would you adapt the sliders to create a different type of solution to the system of equations?
c. Can you create a system of equations in which the lines do not cross? What conclusions can you draw from your answer?
d. Can you create of system of equations that has more than one solution? If so, explain how you would go about doing this. If not, explain why you cannot.
e. Can you add a third line to your system of equations in which it will share the same solution as the other 2 lines in the system? If so, how would you go about finding the equation of that third line? If not, explain why you cannot?
f. If given the solution to a system of equations, how would you go about finding the equations of the lines in the system? How would you adapt this system of equations, to create a new system of equations with the same solution?

