



Name _____

The Prize

Directions: Follow the steps below. The page numbers refer to the TI-Nspire document *lesson10*.

1. The junior class is selling candy to raise money for a dance. They have two kinds of candy bars: Cashew Crunches selling for \$4.00 per box and Peanut Butter Cups selling for \$3.00 per box. Jada can win a prize if she sells more than \$330 worth of candy.

- a. Page 1.2 shows some possible numbers of boxes of each kind of candy. Column A (*cc*), contains the number of boxes of Cashew Crunches. Column B (*pb*), contains the number of boxes of Peanut Butter Cups. In column C (*jsales*), write a formula for the total of Jada's sales. What is your formula?

- b. Jada is trying to plot a strategy for her sales and would like to look at the possibilities graphically. On page 1.3, create a scatter plot on the upper portion, using *cc* along the horizontal axis and *pb* on the vertical axis. Use Zoom-Data to create a window that shows all of the data.

- c. On the lower portion of page 1.3, make a dot plot using *jsales*. Add a movable line at $jsales = 330$. Which dots represent the values for which Jada will win a prize?

- d. Drag the points in the scatter plot so that all of the *jsales* points are greater than \$330. Is there a higher or lower limit for the points in the scatter plot?

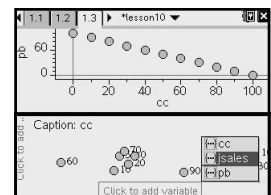
- e. Look at the *jsales* values on page 1.2. Are they all larger than \$330?

- f. Add a movable line on page 1.3 to the scatter plot in a place that you think approximates the limit from question 1d. What is the equation of the line? Are all of the points of the scatter plot above or below the line?

Step 1a

	cc	pb	jsales
	0	100	
	10	90	
	20	80	
	30	70	
	40	60	

Step 1c



The Prize (cont.)

Directions: Follow the steps below. The page numbers refer to the TI-Nspire document *lesson10*.

2. Insert a Graph page and make a scatter plot with cc as the x -coordinate and pb as the y -coordinate. Rewrite the formula for $jsales$ using x for cc and y for pb .

a. Write an equation, setting the expression equal to \$330.

b. Solve the equation for y . How does this equation compare to the movable line from page 1.3?

c. Graph the equation on the same page with the scatter plot. Where are all the points on the scatter plot in relation to the line?

d. Return to page 1.3 and move the points to different places with $jsales$ still more than \$330. Are the points still above the line on the scatter plot?

e. Hide $f1(x)$ on the inserted graph screen. Open the Function Editor. Change the $=$ sign in $f2(x)$ to $>$ and then enter the equation from 2b. Why is the line dashed?

f. Put a point on the dashed line and draw a vertical line through it. Put another point on the vertical line in the shaded region and find the coordinates of both points. Drag the point on the dashed line. What is always true about the y -coordinates of the two points?

g. Where are all of the points from the scatter plot in relation to the shaded region?

The Prize *(cont.)*

Directions: Follow the steps below. The page numbers refer to the TI-Nspire document *lesson10*.

3. Put a point in the shaded region. Store its x -coordinate as c and its y -coordinate as p . Insert a Calculator page and type in $4c + 3p > 330$.

a. What does the handheld say?

b. Drag the point to another place in the shaded region. On the handheld, evaluate the expression again. What does the handheld say?

c. Where should the point be to get the response *false*? Move the point and test your theory.



The Cost

Directions: Follow the steps below. The page numbers refer to the TI-Nspire document *lesson10*.

1. The junior class is sponsoring a dance. They are decorating with streamers. Blue streamers costs \$3.00 per roll, and gold streamers costs \$4.00 per roll. They have budgeted \$54.00 for streamers.
 - a. Using x for the number of rolls for blue streamers and y for the number of rolls of gold streamers, write an expression for the cost of streamers.

 - b. Write an inequality showing that they may spend, at most, \$54.00.

 - c. Find an ordered pair that fits in the budget and another pair that does not. Test them on the Calculator page on 2.1.

 - d. Solve the inequality for y . When you graph the inequality, will the shading be above or below the line? Graph the inequality on page 2.2.

 - e. Where should the point that worked from question 1c appear on the graph? Plot the point to test your answer.

The Cost *(cont.)*

Directions: Follow the steps below. The page numbers refer to the TI-Nspire document *lesson10*.

2. None of the juniors are going to pay admission to the dance. The dance committee estimates that this will cost about \$2.00 for each junior who attends. They will make \$3.00 for each of the other students who attend the dance. The committee hopes to make a profit of more than \$500.
- a. Using x for the number of freshmen, sophomores, and seniors, and y for the number of juniors, write an expression for the amount of money they will net from the dance.

- b. Write an inequality showing that they will make more than \$500.

- c. Write an ordered pair that shows they will make more than \$500 and another showing they will not. Test them on the Calculator page on 2.1.

- d. Solve the inequality for y and graph it on page 2.3. Where is the shaded region? Check your points from question 2c.

3. Insert 3 Graphs pages and graph the following inequalities. Sketch the solutions to the inequalities below. Be sure to show a dashed or solid line. Give the ordered pair of a point that is a solution and another that is not a solution.

a. $y \leq \frac{2}{5}x + 2$

b. $4x - 5y > 10$

c. $2x + 3y \leq 6$



Cross Section

Directions: Use the TI-Nspire handheld to answer the following questions.

1. Tamika got a \$50 gift certificate for Edge, a book and music store. She is going to use it to buy gifts for her 5 cousins. Depending on her purchases, some of the cousins may receive more than one item. The CDs cost \$12 each, and the books she wants are \$6.50 each. Use x for the number of CDs and y for the number of books she could buy.
 - a. Write an inequality describing the total number of CDs and books she could purchase.

 - b. Write an inequality describing the total cost of the gifts.

 - c. Write a system of inequalities that describes the conditions on Tamika's purchases.

 - d. Solve the inequalities for y and the system graphically. Sketch the graph below.
 - e. Give the coordinates of a point that satisfies the problem situation and explain what they mean in terms of the problem.

 - f. Give the coordinates of a point that is a solution to the system of inequalities but does not satisfy the conditions of the problem situation.

 - g. Give the coordinates of a point that is not a solution to the system. _____

Cross Section (cont.)

Directions: Use the TI-Nspire handheld to answer the following questions.

2. Anthony is earning money to buy an HD television set for his room. The cheapest set he can find costs \$300, but he would buy a bigger one if he had enough money. He earns \$5 per hour babysitting and \$8 per hour at the local fast-food restaurant. He would like to work no more than 100 hours. Use x to represent the number of hours he will babysit and y to represent the number of hours he will work at the restaurant.

a. Write an inequality describing the total number of hours he will work.

b. Write an inequality describing the total amount of money he will earn.

c. Write a system of inequalities that describes the conditions Anthony is trying to meet.

d. Solve the inequalities for y and the system graphically. Sketch the graph below.

e. Give the coordinates of a point that satisfies the problem situation and explain what they mean in terms of the problem.

f. Give the coordinates of a point that is a solution to the system of inequalities but does not satisfy the conditions of the problem situation.

g. Give the coordinates of a point that is not a solution to the system. _____