

# Analyzing Inequalities

Guided Practice Worksheet

# Algebra

for Students.

## Writing & Graphing Inequalities

1. Write an inequality that describes each situation. Graph each inequality on the number line.

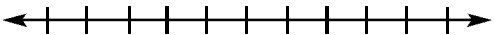
(a) There are more than 100 people in line.



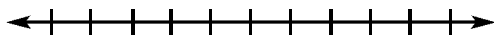
(b) The show will be less than 2 hours long.



(c) I can spend no more than \$15 on refreshments at the concert.



(d) Refreshment sales are expected to yield at least \$250 of additional revenue.



(e) The number of songs played in the concert exceeds last year's set list of 16 songs.

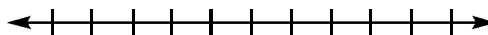


2. Write a compound inequality that describes each situation. Graph each compound inequality on a number line.

(a) The only seats available were in rows 19 through 25.



(b) A student discount seat can be purchased in rows up to and including row 4, or in row 18 and back.



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## Solving Inequalities

Write an inequality that describes each situation. Solve each inequality and check your solution.

1. Student concert tickets sell for \$9 each, with a \$5 service charge for the order. If Brandon and Rayna have a budget of \$80, then how many tickets can they buy?

2. Brandon and Rayna have \$40 to spend at the concert and would like to purchase some souvenir programs for friends who cannot attend. They are able to buy programs at \$8 each, but want to keep \$10 for food. How many programs can they buy?

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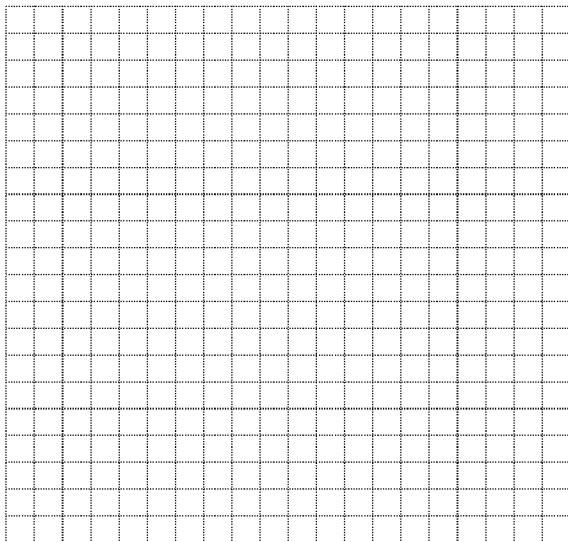
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## Solving Inequalities on the Coordinate Plane

1. A theater has 500 seats, and both adult tickets and student tickets are sold. What combination of adult tickets and student tickets can be sold by the theater? Let  $x$  represent the number of adult tickets and  $y$  represent the number of student tickets.

(a) Write an inequality that describes the situation.

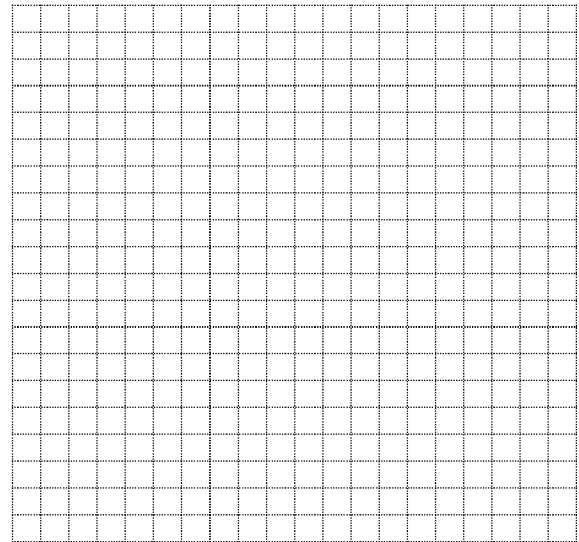
(b) Solve the inequality by graphing and check your solution.



2. At the theater, student tickets cost \$5 each and adult tickets cost \$8 each. If the theater has invested \$1,000 in advertising, how many adult tickets and student tickets need to be sold for the theater to make a profit of \$1,500? Let  $x$  represent the number of adult tickets and  $y$  represent the number of student tickets.

(a) Write a system of inequalities that describes the situation.

(b) Solve the system of inequalities by graphing and check your solution.



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**Determining Solutions to an Inequality**

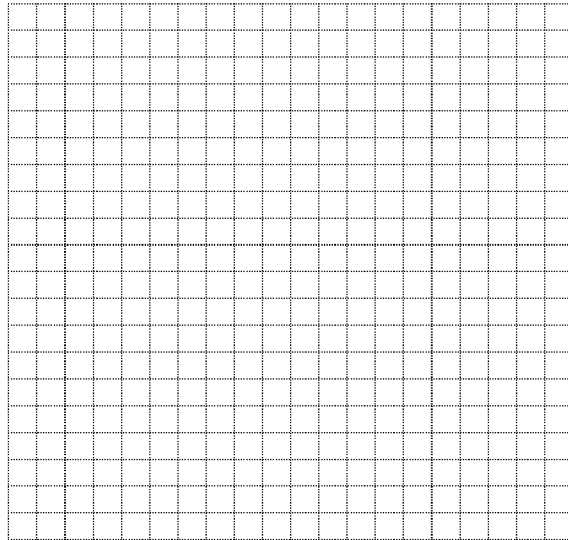
Consider the inequality  $4x - 3y < 7$ .

1. Use graphing to determine which of the following coordinates are solutions to the inequality.

(a) (2,3)

(b) (-1,-5)

(c) (0,0)



2. Can you determine which coordinates are solutions to the inequality without graphing? Explain your answer.