Name _____ Class _____ Date _____

Practice 3-5

Equations to Inequalities

1. Which of these situations have exactly one solution?

1. To make some cookies, John needs 4 eggs.
2. Karen went to more than 5 baseball games last year.
3. Last year, a teacher gave one test for each of the 8 chapters in the textbook.
4. Some friends spent more than 3 hours playing their favorite board game.

a) Check all that apply.

- ❑ A. situation 4
- ❑ B. situation 3
- ❑ C. situation 1
- ❑ D. situation 2

b) Check all of the situations that have more than one solution.

- ❑ A. situation 2
- ❑ B. situation 4
- ❑ C. situation 3
- ❑ D. situation 1

2. Which situations can you represent with an equation?

1. Two friends live 7 blocks apart.
2. A girl earned $26 babysitting on Saturday night.
3. Each class must have fewer than 23 students.
4. The homework took 4 hours to complete.

a) Check all of the situations that apply.

- ❑ A. situation 1
- ❑ B. situation 2
- ❑ C. situation 3
- ❑ D. situation 4

b) Check all of the situations that you can represent with an inequality.

- ❑ A. situation 2
- ❑ B. situation 3
- ❑ C. situation 1
- ❑ D. situation 4

3. The restaurant can seat no more than 171 people. If p is the restaurant's capacity, which of the following inequalities models the given situation?

- ❍ A. $p \leq 171$
- ❍ B. $p > 171$
- ❍ C. $p \geq 171$
- ❍ D. $p < 171$

4. Which of these situations can you represent with the inequality $x \geq 45$?

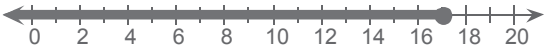
1. You must be at least 45 inches tall to go on this ride.
2. A loaf of bread must be baked for no more than 45 minutes.
3. You have at least 45 minutes left on a parking meter.
4. The bill at a restaurant was no more than $45.

Check all of the situations that you can represent with the inequality $x \geq 45$.

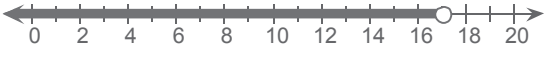
- ❑ A. situation 4
- ❑ B. situation 1
- ❑ C. situation 3
- ❑ D. situation 2

5. Two cities are less than 17 miles apart. Choose the correct graph that models the situation.

❍ A. 

❍ B. 

❍ C. 

❍ D. 

6. Which inequality has this graph?

❍ A. $x \leq 5$

❍ B. $x < 5$

❍ C. $x \geq 5$

❍ D. $x > 5$

❍ E. $x \neq 5$

7. a) Multiple Representations For the following situation, decide if there is exactly one or more than one solution. Make one or more drawings to support your answer. A glass holds 9 ounces of juice. A boy overfills the glass and spills some juice. How much juice could he spill?

b) How many solutions are there?

❍ A. exactly one

❍ B. more than one

8. Writing Simon has fewer than 8 photographs in an art show. Decide if you can represent this situation with an equation or inequality. Explain your answer.

9. a) Open-Ended Describe a situation that you could represent with the inequality $x > 17$.

b) Is 22 a solution of your situation?

❍ A. Yes

❍ B. No

10. a) Reasoning Graph the inequalities $x > 2$ and $x < 2$.

b) Are the graphs the same?

❍ A. No

❍ B. Yes

11. Error Analysis Two students were told to find an inequality that has this graph.

Andrew says the inequality is $x > 7$. Lauren says the inequality is $x < 7$. Who is incorrect and why?

- ❍ A. Andrew is incorrect. His inequality symbol points the wrong way.
- ❍ B. Lauren is incorrect. Her inequality includes 7 as a solution.
- ❍ C. Lauren is incorrect. Her inequality includes 7 as a solution, and her inequality symbol points the wrong way.
- ❍ D. Lauren is incorrect. Her inequality symbol points the wrong way.
- ❍ E. Andrew is incorrect. His inequality includes 7 as a solution, and his inequality symbol point the wrong way.
- ❍ F. Andrew is incorrect. His inequality includes 7 as a solution.

12. Vehicle Speed Write an inequality that represents the situation. Use x for the speed of the truck.

The speed of the truck must be no less than 34 miles per hour.

- ❍ A. $x > 34$
- ❍ B. $x \geq 34$
- ❍ C. $x \leq 34$
- ❍ D. $x < 34$
- ❍ E. $x \neq 34$

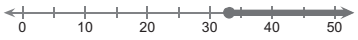
13. Graph the inequality that models the situation.

There are at most 33 books in a bookcase.

Choose the correct graph below.

- ❍ A. 

- ❍ B. 

- ❍ C. 

- ❍ D. 

14. Think About the Process You have to graph the inequality $x < 12$. What is your first step?

The first step is to draw a closed circle/an open circle at 12.

15. Think About the Process You need to find an inequality that has this graph. What inequality symbol should you use?

Choose the correct inequality symbol below.

- ❍ A. $>$
- ❍ B. $\neq$
- ❍ C. $<$
- ❍ D. $\geq$