

Pattern and Relations 4

Name: _____

6. The solution to the inequality $6 - x > -1$ is

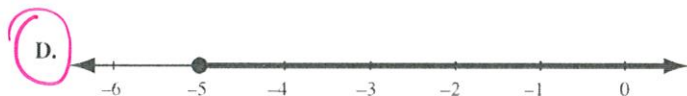
- A. $x < 7$
- B. $x > 7$
- C. $x < -7$
- D. $x > -7$

$$\begin{aligned} -6 & -6 \\ -x & > -7 \\ x & < 7 \end{aligned}$$

8. Which of the following number lines represents the solution to the inequality $5x - 3 \leq 7x + 7$?

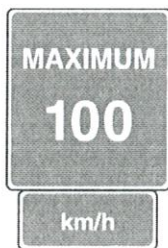
$$\begin{aligned} 5x - 3 & \leq 7x + 7 \\ -7 & -7 \end{aligned}$$

$$\begin{aligned} 5x - 10 & \leq 7x \\ -5x & -5x \\ -10 & \leq 2x \\ \frac{-10}{2} & \leq \frac{2x}{2} \\ -5 & \leq x \end{aligned}$$



Use the following information to answer question 12.

Kristy received a speeding ticket for travelling above the posted limit.



$$100 < s$$

12. The inequality that shows the speed, s , that Kristy was travelling at is

- A. $s \leq 100$ km/h
- B. $s < 100$ km/h
- C. $s \geq 100$ km/h
- D. $s > 100$ km/h

not equal because she wouldn't get a ticket in that case

Pattern and Relations 4

Name: _____

Use the following information to answer question 29.

Sandy has a budget of \$100 to spend on back-to-school clothes. The shirts she wants to buy are \$12 each, and the pants she wants to buy are \$25 each. All prices include tax.

29. Which of the following inequalities could be used to determine the maximum number of shirts, n , Sandy can buy if she also buys 2 pairs of pants?

- A. $12n - 2(25) \leq 100$
 - B. $12n + 2(25) \leq 100$
 - C. $2(25) - 12n \geq 100$
 - D. $2(25) + 12n \geq 100$
- $100 \geq 12s + 25p$
 $100 \geq 12s + 25(2)$

Numerical Response

8. At a picnic for 49 people, 4 families each brought an equal number of lawn chairs. If 5 more lawn chairs were still needed, then how many chairs did each family bring?

Answer: 11

$$4x + 5 = 49$$

$$\begin{array}{r} 4x + 5 = 49 \\ -5 \quad -5 \\ \hline 4x = 44 \\ x = 11 \end{array}$$

(Record your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 20.

Chantal receives a \$50 gift card to join the online music store shown below.



20. Which of the following inequalities can be used to determine the maximum number of songs that Chantal can purchase with her gift card?

- A. $50 \geq 5 + 0.99x$
- B. $50 > 5 + 0.99x$
- C. $50 \leq 5 + 0.99x$
- D. $50 < 5 + 0.99x$

Gift card
 songs
 sign up

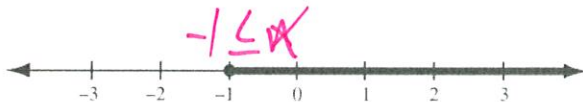
$$50 \geq 0.99s + 5$$

Pattern and Relations 4

Name: _____

Use the following information to answer question 5.

An inequality is shown on each number line below.

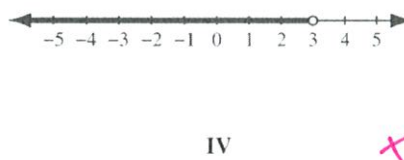
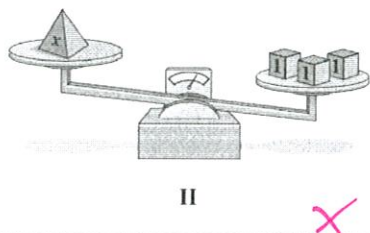
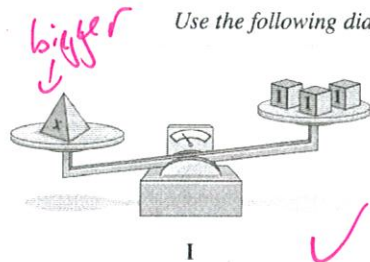


5. Which expression represents the values (n) that are part of both inequalities?

- A. $-1 \leq n \leq 1$
- B. $-1 \leq n < 1$
- C. $-1 < n \leq 1$
- D. $-1 < n < 1$

Handwritten in pink: $-1 \leq n < 1$

Use the following diagrams to answer question 24.



24. The two diagrams shown above that **both** represent the inequality $x > 3$ are numbered

- A. I and III
- B. I and IV
- C. II and III
- D. II and IV

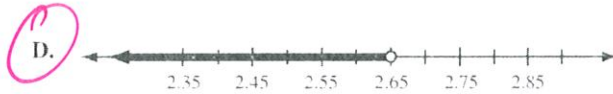
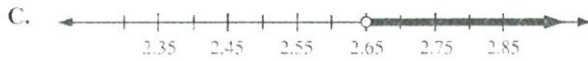
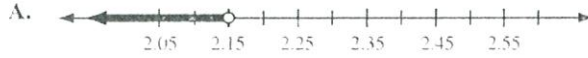
Pattern and Relations 4

Name: _____

Use the following information to answer question 2.

Aaron buys a cheeseburger for \$6.50 and a container of milk for \$0.80. Sam buys a tossed salad and a bowl of soup. The soup costs \$2.00 more than the salad. Sam's meal is less expensive than Aaron's meal.

2. Which of the following number lines could represent the price of Sam's salad?



Soup & salad

$$6.50 + 0.80 > 2 + x + x$$

$$7.3 > 2 + 2$$

$$\quad \quad -2 \quad -2$$

$$\frac{5.3}{2} > \frac{2x}{2}$$

$$2.65 > x$$

The cost of a team banquet is \$200 for the room rental and \$15 per person, n , for the meal. All taxes are included in these costs. The team has a maximum budget of \$650 for the banquet.

20. The inequality that can be used to determine how many people can attend is

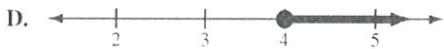
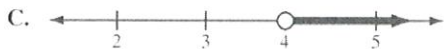
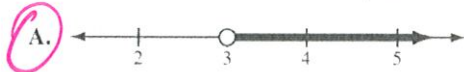
- A. $15n + 200 > 650$
- B. $15n + 200 < 650$
- C. $15n + 200 \geq 650$
- D.** $15n + 200 \leq 650$

$$200 + 15n \leq 650$$

Pattern and Relations 4

Name: _____

31. Which number line shown below represents the solution to $4(2x - 1) > 4x + 8$?



$$\begin{aligned}
 8x - 4 &> 4x + 8 \\
 -4x &\quad -4x \\
 4x - 4 &> 8 \\
 +4 &\quad +4 \\
 \frac{4x}{4} &> \frac{12}{4} \\
 x &> 3
 \end{aligned}$$

Jennifer's goal is to save \$1 200. Each week she saves 20% of her weekly income of \$576.

7. How many weeks will it take Jennifer to reach her goal?

- A. 10
 B. 11
 C. 24
 D. 29

$$\begin{aligned}
 &0.20 \quad 0.20 \cdot 576 = 115.2 \\
 &1200 \leq 115.2x \\
 &\frac{1200}{115.2} \leq \frac{115.2x}{115.2} \\
 &10.41 \leq x \\
 &x = 11
 \end{aligned}$$

↑
savings per week