

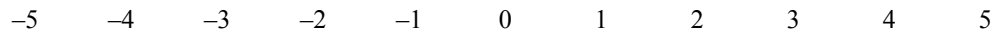
## Review: Inequalities

We are at the end of our short unit on inequalities. On Thursday, November 13, we will have a quiz on solving and graphing inequalities. This material is covered in the class packets dated November 4, 5, and 6 (plus this review packet). It's also found in the textbook, sections 6.1–6.3.

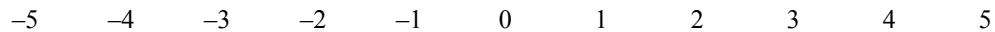
Today's packet has review problems, plus some word problems involving inequalities.

**Directions:** Solve each equation or inequality. Circle your final answer. Then graph the solution on the number line.

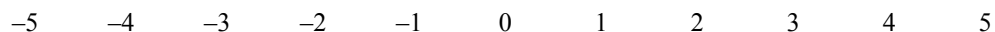
1.  $-4x + 14 < 6$



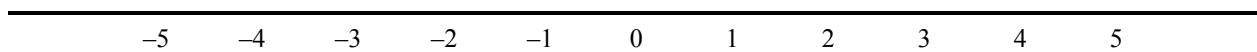
2.  $x + 3 \geq 2x + 5$



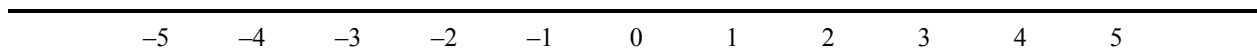
3.  $7 \leq x + 10 < 12$



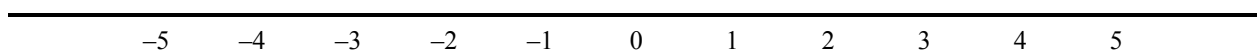
4.  $-1 < -2x + 7 \leq 15$



5.  $7x \leq -28$  *or*  $7x \geq 14$



6.  $7x > -28$  *and*  $7x < 14$



7. A cheerleading team is raising funds for new uniforms. It began the season with \$600 in its bank account. The team is running a weekly fundraiser that is earning \$50 each week.

Let  $x$  = the number of weeks into the season;  $f(x)$  = the dollar amount in the team's account.

- a. Write a function formula equation for  $f(x)$ .

- b. The uniforms are expected to cost between \$1300 and \$1500. Put your function formula from part **a** into this inequality stating that the amount in the team's account is between \$1300 and \$1500.

$$1300 \leq \underline{\hspace{4cm}} \leq 1500.$$

- c. Solve the inequality that you wrote in part **b**.

- d. Explain the meaning of the solution, in terms of the cheerleading team.

- 8.** Suppose that the Student-Faculty Senate is tracking the number of seniors who have not yet completed the community service requirement. Suppose that at the start of the year there were 250 seniors who hadn't met the requirement, but the amount has been dropping at a steady rate of 10 students per week.

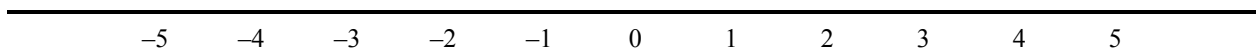
Let  $x$  = the number of weeks into the school year,

$f(x)$  = the number of seniors not yet done with the requirement.

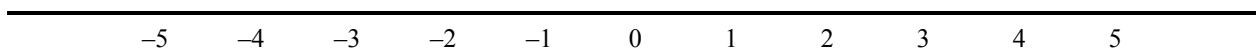
- a.** Write a function formula equation for  $f(x)$ .
- b.** The Senate wants to send warning letters to seniors who haven't finished the requirement, but doesn't want to have to send too many letters. It decides that the letters should be sent when the number of remaining seniors is between 30 and 50. Write an inequality that says this.
- c.** Solve the inequality.
- d.** Write a conclusion about when the Senate should be planning to send the letters.

9. Let  $f(x) = 2(x - 1) + 5$ .

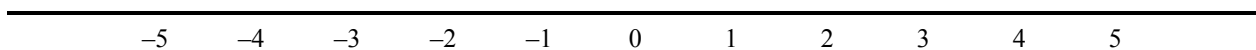
a. Solve the inequality  $f(x) < 11$ . Graph the solution on a number line.



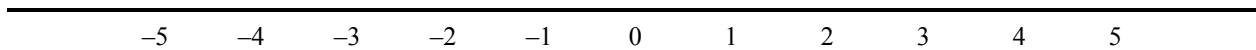
b. Solve the inequality  $f(x) \geq 1$ . Graph the solution on a number line.



c. Solve the inequality  $3 \leq f(x) \leq 9$ . Graph the solution on a number line.



d. Solve:  $f(x) < -1$  **or**  $f(x) \geq 7$ . Graph the solution on a number line.



**Directions:** Solve each inequality, then make a number line graph of the solution. (From here on you'll have to draw your own number lines.)

**10.**  $14 < -3x + 8$

**11.**  $2x - 5 \geq 3(x - 1)$

**12.**  $5(x + 3) > 5x + 3$