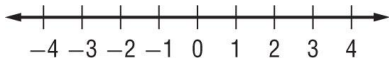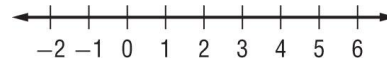# 1-5 Practice
Solving Inequalities

Solve each inequality. Then graph the solution set on a number line.
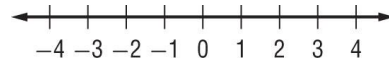
1. $8x - 6 \geq 10$
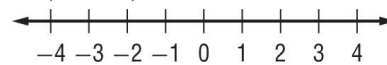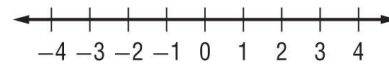
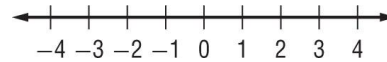$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$
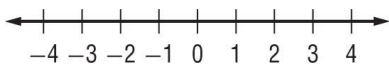
2. $23 - 4u < 11$

$-2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6$

3. $-16 - 8r \geq 0$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

4. $14c < 9c + 5$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

5. $9x - 11 > 6x - 9$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

6. $-3(4w - 1) > 18$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

7. $1 - 8u \leq 3u - 10$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

8. $17.5 < 19 - 2.5x$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

9. $9(2r - 5) - 3 < 7r - 4$

$-2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6$

10. $1 + 5(x - 8) \leq 2 - (x + 5)$

$0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6\ \ 7\ \ 8$

11. $\frac{4x-3}{2} \geq -3.5$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

12. $q - 2(2 - q) \leq 0$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

13. $-36 - 2(w + 77) > -4(2w + 52)$

$-4\ -3\ -2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4$

14. $4n - 5(n - 3) > 3(n + 1) - 4$

$-2\ -1\ \ 0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6$
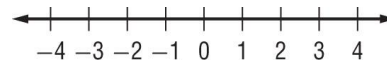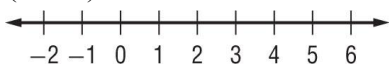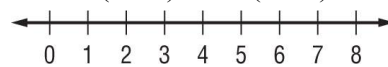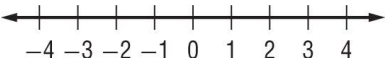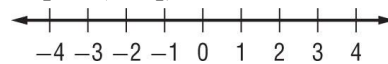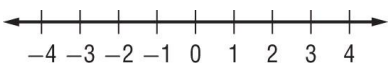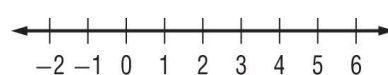
Define a variable and write an inequality for each problem. Then solve.

15. Twenty less than a number is more than twice the same number.

16. Four times the sum of twice a number and –3 is less than 5.5 times that same number.

17. HOTELS The Lincoln's hotel room costs $90 a night. An additional 10% tax is added. Hotel parking is $12 per day. The Lincoln's expect to spend $30 in tips during their stay. Solve the inequality $90x + 90(0.1)x + 12x + 30 \leq 600$ to find how many nights the Lincoln's can stay at the hotel without exceeding total hotel costs of $600.

18. BANKING Jan's account balance is $3800. Of this, $750 is for rent. Jan wants to keep a balance of at least $500. Write and solve an inequality describing how much she can withdraw and still leave enough for rent and a $500 balance.

1-5 Word Problem Practice
Solving Inequalities

1. **PANDAS** An adult panda bear will eat at least 20 pounds of bamboo every day. Write an inequality that expresses this situation.

2. **PARTY FAVORS** Janelle would like to give a party bag to every person who is coming to her party. The cost of the party bag is $7 per person. Write an inequality that describes the number of people P that she can invite if Janelle has D dollars to spend on the party bags.

3. **INCOME** Manuel takes a job translating English instruction manuals to Spanish. He will receive $15 per page plus $100 per month. Manuel would like to work for 3 months during the summer and make at least $1500. Write and solve an inequality to find the minimum number of pages Manuel must translate in order to reach his goal.

4. **FINDING THE ERROR** The sample below shows how Brandon solved $5 < -2x - 7$. Study his solution and determine if it is correct. Explain your reasoning.

$$5 < -2x - 7$$
$$12 < -2x$$
$$-6 < x$$

5. **CARNIVALS** On a Ferris wheel at a carnival, only two people per car are allowed. The two people together cannot weigh more than 300 pounds. Let x and y be the weights of the people.

   a. Write an inequality that describes the weight limitation in terms of x and y.

   b. Write an inequality that describes the limit on the average weight a of the two riders.

   c. Ron and his father want to go on the ride together. Ron's father weighs 175 pounds. What is the maximum weight Ron can be for the two to be allowed on the ride?