

## Math Worksheet for 6th Grade

### Intro to inequalities with variables

#### Testing solutions to inequalities

1. Is  $x = 3$  a solution to  $x + 4 < 10$ ?
2. Is  $x = 6$  a solution to  $2x - 12$ ?
3. Is  $x = -1$  a solution to  $x - 5 = -6$ ?
4. Is  $x = 0$  a solution to  $-2x > -3$ ?
5. Is  $x = 4$  a solution to  $3x + 1 = 13$ ?
6. Is  $x = 7$  a solution to  $\frac{x}{2} < 4$ ?
7. Is  $x = 8$  a solution to  $x - 9 = -2$ ?
8. Is  $x = 2$  a solution to  $5x > 10$ ?
9. Is  $x = -3$  a solution to  $-x < 4$ ?
10. Is  $x = 5$  a solution to  $4x = 20$ ?
11. Is  $x = 3$  a solution to  $x + 7 > 11$ ?
12. Is  $x = 10$  a solution to  $2x - 5 < 15$ ?
13. Is  $x = 1$  a solution to  $-3x = -3$ ?
14. Is  $x = 0$  a solution to  $\frac{x}{3} = 0$ ?
15. Is  $x = -4$  a solution to  $2x + 3 < 0$ ?
16. Is  $x = 9$  a solution to  $x - 4 = 5$ ?
17. Is  $x = 6$  a solution to  $\frac{x}{2} = 3$ ?
18. Is  $x = -2$  a solution to  $x + 5 > 2$ ?
19. Is  $x = 1$  a solution to  $7 - x = 5$ ?
20. Is  $x = 2$  a solution to  $3(x + 1) < 12$ ?

#### Plotting inequalities (graph $\frac{\text{description}}{\text{points}}$ )

21. Describe how to graph  $x > 2$  on a number line ( $\frac{\text{open}}{\text{closed}}$  circle and direction).
22. Describe how to graph  $x = -1$ .
23. Describe how to graph  $x = 0$ .
24. Describe how to graph  $x < -3$ .
25. Describe how to graph  $x = 5$ .
26. Describe how to graph  $x = 4$ .
27. Describe how to graph  $-2 < x < 3$  (both endpoints).
28. Describe how to graph  $-4 \leq x < 1$ .
29. For  $x > -2$ , list five integers that satisfy the inequality.
30. For  $x \leq 2$ , list five integers that satisfy the inequality.



# Math Worksheet for 6th Grade

## Intro to inequalities with variables

Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

31. For the inequality  $x \geq -3$ , which of these points would be filled (closed): -5, -3, 0?
32. For  $x < 1$ , would you draw an open or closed circle at 1, and which direction do you shade?

Plotting an inequality example (solve then describe graph)

33. Solve and describe the graph:  $2x + 1 \geq 7$ .
34. Solve and describe the graph:  $3x - 2 > 4$ .
35. Solve and describe the graph:  $\frac{x}{2} + 3 \leq 5$ .
36. Solve and describe the graph:  $-x + 4 < 2$ .
37. Solve and describe the graph:  $4x \leq 8$ .
38. Solve and describe the graph:  $5 - x \leq 3$ .
39. Solve and describe the graph:  $2(x - 1) > 4$ .
40. Solve and describe the graph:  $x + 6 < 10$ .

Inequalities word problems (write an inequality, solve, and give result)

41. Anna needs at least \$50 to buy a bike. She has \$18. Let  $x$  be the money Anna still needs. Write an inequality and find the minimum  $x$ .
42. A class can have at most 28 students. There are currently 22 signed up. Let  $y$  be how many more students can sign up. Write an inequality and find  $y$ .
43. Notebooks are sold in packs of 5. You need at least 12 notebooks. Let  $p$  be the number of packs to buy. Write an inequality and find the smallest whole  $p$ .
44. Sasha must score at least 80 points to pass. She has 65 points so far. Let  $m$  be how many more points she needs. Write an inequality and find  $m$ .
45. A movie requires people to be at least 12 years old to see it. Let  $a$  be a person's age. Write the inequality. Is a 10-year-old allowed? Is a 14-year-old allowed?
46. The maximum baggage weight allowed is 50 kg. A bag currently weighs 47 kg. Let  $w$  be how much more weight can be added. Write an inequality and find  $w$ .
47. A recipe must have less than 3 cups of sugar. You already added 1 cup. Let  $s$  be how much more sugar you can add. Write an inequality and describe the largest extra amount.
48. A parking lot holds no more than 120 cars. Currently 88 cars are parked. Let  $c$  be how many more cars can park. Write an inequality and find  $c$ .
49. A bus has 40 seats and 26 people are on board. Let  $p$  be how many more people can get on if no standing is allowed. Write an inequality and find  $p$ .
50. A store gives a discount to customers who buy more than 3 items. Let  $n$  be the number of items bought. If a customer buys 4 items, are they eligible? Write the inequality and answer.