Math Worksheet for 9th Grade

Multi-step inequalities

Name: Due Date: Teacher: Parent Sign:

2. Solve: 7 - 2x ? 3x + 2

3. Solve: 4(2x - 3) ? 3x + 5

4. Solve: -3(x + 4) < 2x - 1

5. Solve: 5x - 7 < 2(x + 4)

6. Solve: 2(3x - 1) - 4 > x + 5

7. Solve: 6x + 2 ? 2(x + 9) - x

8. Solve: -4x + 7 ? 3 - 2(x + 5)

9. Solve: $(\frac{1}{2})$(x - 6) + 3 ? x/3 + 1

10. Solve: 3(x + 2) < 2(2x - 1) + 5

11. Solve the compound inequality: 1 ? 2x + 3 < 9

12. Solve the compound inequality: -5 < 3x - 4 ? 2

13. Solve the system (intersection): 2x + 1 < 5 and -x + 4 ? 1

14. Solve the compound inequality: -3 ? 4 - x < 9

15. Solve both and give intersection: 2(x - 3) ? 3x - 6 and x + 2 > 0

16. Solve (union): 3x - 5 > 10 or 2x + 1 < -3

17. Solve (union): -2(x + 4) ? 6 or 5 - x ? 2

18. Solve both and give intersection: 2x - 7 ? 3x + 2 and x/2 > 1

19. Solve: x/4 - 2 < x/2 - 5

20. Solve: 5 - 3(x + 2) < 2x - 1

21. Word problem – pens: A student has $50. Pens cost $1.25 each and a notebook costs $4. Let x be number of pens. Write and solve an inequality for x so total cost ? $50.

22. Word problem – garden perimeter: A rectangular garden has length equal to twice its width plus 3 meters. If the perimeter must be at most 60 m, let w be the width. Write and solve the inequality for w.

23. Word problem – car rental: A car rental charges $30 per day plus $0.20 per mile. If total cost must be ? $100, how many miles m can be driven? Write and solve the inequality.

24. Word problem – texts: A phone plan costs $20 base plus $0.10 per text. If your budget is $40, how many texts t can you send? Write and solve the inequality.

25. Word problem – final exam: A student has 55

26. Word problem – ticket limit: A concert has sold 40 tickets plus 3 times the number of online groups x; the capacity is 500. Solve 3x + 40 < 500 for x.

27. Word problem – fundraiser: A fundraiser gets $150 in donations and sells tickets at $8 each. To raise at least $2000, how many tickets t must be sold? Write and solve the inequality.

28. Word problem – recipe batches: A recipe uses $\frac{2}{3}$ cup sugar per batch. With at most 10 cups sugar available, how many batches b can be made? Write and solve the inequality.

29. Word problem – data: A cellphone bill is \$25 base plus \$5 per extra GB. If your bill must be ? \$60, how many extra GB x can you use? Write and solve the inequality.

30. Solve: $-5 < t < 15$

31. Solve: $4x + 1 > 9x - 14$

32. Solve: $-7 - 2(x - 3)$? $3x + 5$

33. Solve: $(\frac{1}{3})(6x - 9)$? $x + 1$

34. Solve: $-(2x + 5) < 3(x - 4) + 2$

35. Solve: $3(2x - 1) + 4$? $5x + 2$

36. Solve: $2(x - 5) + 3(x + 2) > 4x - 1$

37. Solve: $5x + 6$? $2(4x - 3) + x$

38. Solve: $-3x + 8 < 2(x - 6) + 4$

39. Solve: $7 - (3x + 2)$? $2 - x$

40. Solve: $x/5 + 2$? $x/2 + 1$

41. Word problem – study hours: Sam wants an average of at least 3 hours per day over 5 days. He studied 2, 3, x, 4, and 3 hours those five days respectively. Write and solve the inequality for x.

42. Word problem – contractor hours: A contractor charges \$40/hour plus \$60 materials. With a budget of \$300, how many hours h can be hired? Write and solve the inequality.

43. Word problem – test average: A student scored 78 and 85 on two tests. What minimum score x is needed on the third test so the average is at least 80? Write and solve.

44. Word problem – sale price: A sweater is sold at 25% off its original price x. You want the sale price to be ? \$60. Write and solve the inequality for x.

45. Word problem – bus trip: A bus trip costs \$1.50 per mile plus a \$10 booking fee. If you can spend at most \$40, how many miles m can you travel? Write and solve.

46. Word problem – ages: Megan's age is 3 less than twice her brother's age b. Together their ages are at most 30. Write and solve an inequality for b.

47. Word problem – cable: Cable costs \$35 base plus \$5 for each premium channel p. If the bill must be ? \$80, how many premium channels can you have? Write and solve.

48. Solve: $-2(3x - 4) + 5$? $x - 1$

49. Solve: $4 - (x + 5)/2 > 1$

50. Solve: $3(x - 2) + 4(2 - x) < 1$