

3-7
EXERCISES

Chapter 3
Inequalities

Homework Help Online

Online Support for Lesson 3-7 Homework

GUIDED PRACTICE

Click a video icon to see a Lesson Tutorial Video. Click a pencil icon to practice similar problems.



VIDEO

See Example 1

Solve each inequality and graph the solutions.

1. $|x| - 5 \leq -2$

2. $|x + 1| - 7.8 < 6.2$

3. $|3x| + 2 < 8$

4. $4|x| \leq 20$

5. $|x - 5| + 1 < 2$

6. $\left|x + \frac{1}{2}\right| - \frac{1}{2} \leq 3\frac{1}{2}$



PRACTICE



VIDEO

See Example 2

7. $|x| - 6 > 16$

8. $|x| + 2.9 > 8.6$

9. $2|x| \geq 8$

10. $|x + 2| > 7$

11. $|x - 3| + 2 \geq 4$

12. $|x + 5| - 4\frac{1}{2} \geq 7\frac{1}{2}$



PRACTICE



VIDEO

See Example 3

- 13. Nutrition** A nutritionist recommends that an adult male consume 55 grams of fat per day. It is acceptable for the fat intake to differ from this amount by at most 25 grams. Write and solve an absolute-value inequality to find the range of fat intake that is acceptable. Graph the solutions.



PRACTICE



VIDEO

See Example 4

Solve each inequality.

14. $|x| + 8 \leq 2$

15. $|x + 3| < -5$

16. $|x + 4| \geq -8$

17. $|x - 5| + \frac{1}{3} > -1$

18. $|3x| + 7 > 2$

19. $|x - 7| + 3.5 \leq 2$



PRACTICE

PRACTICE AND PROBLEM SOLVING

Click a video icon to see a Lesson Tutorial Video. Click a lightbulb icon to see a complete solution.



VIDEO

Solve each inequality and graph the solutions.

20. $|x| + 6 \leq 10$

21. $|x - 3| < 1$

22. $|x - 2| - 8 \leq -3$

23. $|5x| < 15$

24. $|x - 2.4| + 4 \leq 6.4$

25. $4 + |x + 3| < 7$



VIDEO

26. $|x - 1| > 2$

27. $6|x| \geq 60$

28. $|x - 4| + 3 > 8$

29. $2|x + 2| \geq 16$

30. $3 + |x - 4| > 4$

31. $\left|x - \frac{1}{2}\right| + 9 > 10\frac{1}{2}$



VIDEO

32. The thermostat for a sauna is set to 175 °F, but the actual temperature of the sauna may vary by as much as 12 °F. Write and solve an absolute-value inequality to find the range of possible temperatures. Graph the solutions.



VIDEO

Solve each inequality.

33. $12 + |x| \leq 10$

34. $\left|x + \frac{3}{5}\right| - 2 > -4$

35. $|x + 1| + 5 \geq 4$

36. $|4x| - 3 < -6$

37. $3|x - 4| \leq -9$

38. $|2x| + 9 \geq 9$

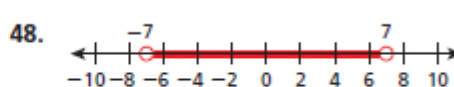
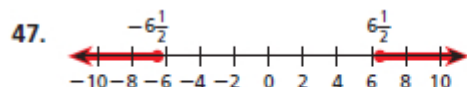


SOLUTION

43. All numbers less than or equal to 3 units from 2 on the number line



SOLUTION



SOLUTION

49. **Multi-Step** The frequency of a sound wave determines its pitch. The human ear can detect a wide range of frequencies, from 20 Hz (very low notes) to 20,000 Hz (very high notes).

- What frequency is at the middle of the range?
- Write an absolute-value inequality for the range of frequencies the human ear can detect.



51. **Entertainment** On a game show, a contestant must guess a secret two-digit number. The secret number is 23. Write an absolute-value inequality that shows that the contestant's guess is more than 12 numbers away from the secret number.