

**LESSON**  
**5.5****Practice C**

For use with the lesson "Solve Absolute Value Equations"

**Solve the equation.**

1.  $|x - 15| = 26$

2.  $|10 - x| = 9$

3.  $|4x + 1| = 17$

4.  $|3x - 4| = 18$

5.  $|8 - 2x| = 22$

6.  $5|6x - 3| = 30$

7.  $\frac{1}{4}|2x - 10| + 1 = 5$

8.  $8|2x + 7| - 1 = 23$

9.  $-5|3x + 1| - 3 = -7$

**Solve the equation, if possible.**

10.  $|x - 6| + 8 = 6$

11.  $|x + 7| + 10 = 6$

12.  $-4\left|1 - \frac{7}{2}x\right| = -8$

13.  $-8|10 - 3x| = 24$

14.  $-3\left|1 - \frac{3}{4}x\right| = -18$

15.  $-12|15 - x| - 3 = -9$

16.  $\frac{5}{3}|4x + 1| + 4 = 24$

17.  $-4\left|\frac{2}{3}x - 6\right| + 5 = 11$

18.  $-8|3x + 2| - 9 = -41$

**Find the values of  $x$  that satisfy the definition of absolute value for the given value and the given absolute deviation.**

19. Given value: 2.5; absolute deviation: 4.5

20. Given value: 6.8; absolute deviation: 7.3

21. Given value:  $-8.1$ ; absolute deviation: 1.3

22. Given value:  $-9.4$ ; absolute deviation: 2.2

23. How many solutions does the equation  $a|x + b| + c = d$  have if  $a < 0$  and  $c = d$ ? If  $a < 0$ ,  $d > 0$ , and  $c < d$ ? Explain.

24. **Truck Scale** If you travel along a highway, you will notice that there are weigh stations for large trucks. The purpose of these stations is to make sure that these trucks are traveling with loads that are not too heavy. A truck with a load that is too heavy can be unsafe and cause damage to the roads. The absolute error for a scale at a weigh station is 10% of the total weight.

a. Find the maximum and minimum possible weights of a truck that is weighed with the scale and weighs 35,000 pounds.

b. Find the maximum and minimum possible weights of a truck that is weighed with the scale and weighs 46,000 pounds.

c. Find the maximum and minimum possible weights of a truck that is weighed with the scale and weighs 63,500 pounds.

25. **Driving** You have been keeping a record of how long it takes you to get home from work during good weather. The times range from 20 minutes to 45 minutes. Let  $t$  represent the slowest or fastest time (in seconds). Write an absolute value equation that describes the situation.