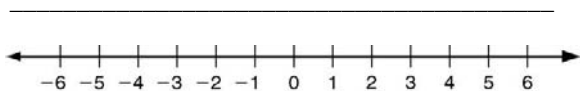


LESSON
2-7

Practice B
Solving Absolute-Value Inequalities

Solve each inequality and graph the solutions.

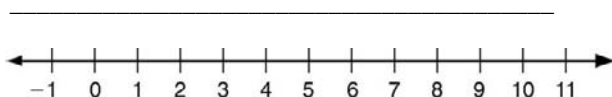
1. $|x| - 2 \leq 3$



2. $|x + 1| + 5 < 7$



3. $3|x - 6| \leq 9$



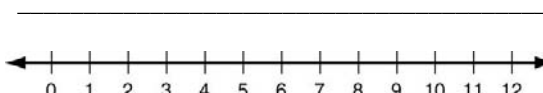
4. $|x + 3| - 1.5 < -2.5$



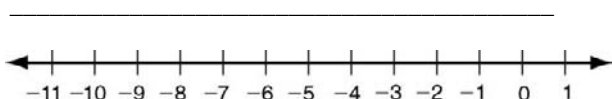
5. $|x| + 17 > 20$



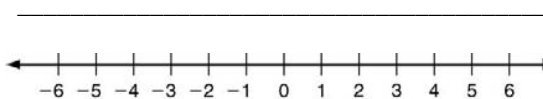
6. $|x - 6| - 7 > -3$



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

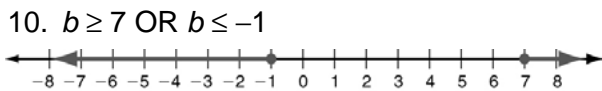
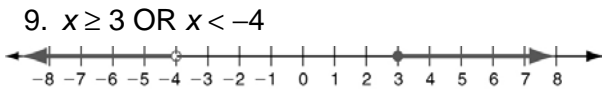
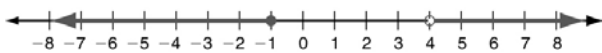
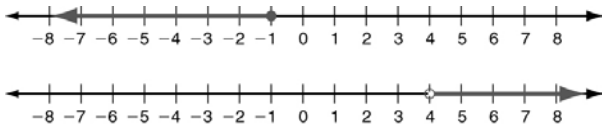


8. $2|x - 2| \geq 3$



9. The organizers of a drama club wanted to sell 350 tickets to their show. The actual sales were no more than 35 tickets from this goal. Write and solve an absolute-value inequality to find the range of the number of tickets that may have been sold.

10. The temperature at noon in Los Angeles on a summer day was 88 °F. During the day, the temperature varied from this by as much as 7.5 °F. Write and solve an absolute-value inequality to find the range of possible temperatures for that day.



Challenge



7. Answers may vary. Sample answer:
closed intervals centered at each integer
with each interval being $\frac{1}{2}$ unit long

8. $n \leq x \leq n + \frac{1}{2}$

9. $2n \leq x \leq 2n + 1$

10. $4n - 1 \leq x \leq 4n + 1$

11. a. Answers may vary. Sample answers:
The center of the interval is 1, and its
length is $\frac{2}{n}$.

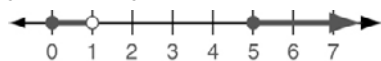
b. As n gets larger, the center remains at 1, but the length of the interval gets smaller.

Problem Solving

1. $68 \leq t + 8 \leq 77$; $60 \leq t \leq 69$

2. $380 \leq m + 45 \leq 410$; $335 \leq m \leq 365$

3. $y < 1$ OR $y \geq 5$



4. $10 \leq 2a \leq 15$; $5 \leq a \leq 7.5$



5. C

6. G

7. B

Reading Strategies

1. OR

2. Possible answer: 5, 6, 7

3. Possible answer: 3, 10, 11

4. AND

5. OR statement; AND statement

2-7 SOLVING ABSOLUTE-VALUE INEQUALITIES

Practice A

1. 7; 7; 2; -2; 2

2. -3; 3; 1; 1; 1; 1; -2; 4

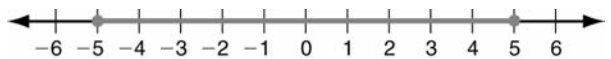
3. $x > -4$ AND $x < 4$



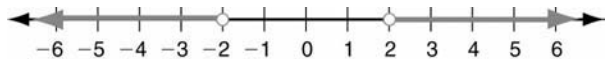
4. $x \geq -4$ AND $x \leq 0$



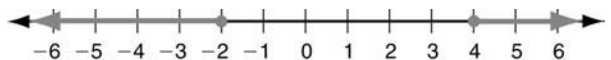
5. $x \geq -5$ AND $x \leq 5$



6. $x < -2$ OR $x > 2$



7. $x \leq -2$ OR $x \geq 4$



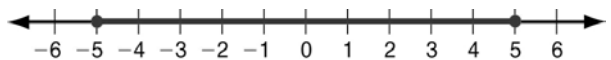
8. $x < -5$ OR $x > -1$



9. $|x - 85| \leq 4$; $81 \leq x \leq 88$

Practice B

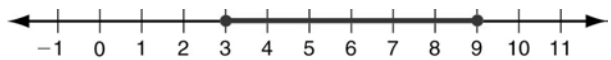
1. $x \geq -5$ AND $x \leq 5$



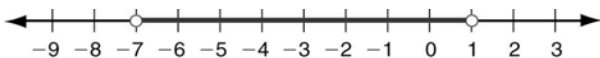
2. $x > -3$ AND $x < 1$



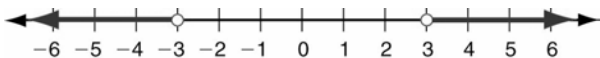
3. $x \geq 3$ AND $x \leq 9$



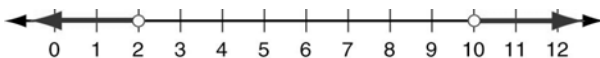
4. $x > -7$ AND $x < 1$



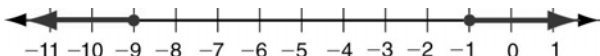
5. $x < -3$ OR $x > 3$



6. $x < 2$ OR $x > 10$



7. $x \leq -9$ OR $x \geq -1$



8. $x \leq 0.5$ OR $x \geq 3.5$



9. $|x - 350| \leq 35$; $315 \leq x \leq 385$

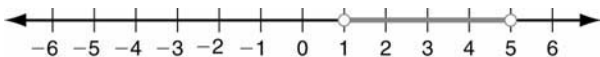
10. $|x - 88| \leq 7.5$; $80.5 \leq x \leq 95.5$

Practice C

1. $x > -3$ AND $x < 3$



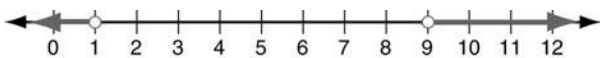
2. $x > 1$ AND $x < 5$



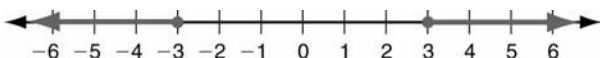
3. $x \geq -5$ AND $x \leq 1$



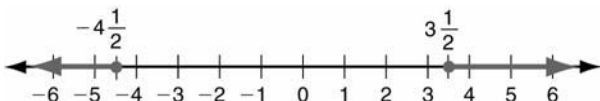
4. $x < 1$ OR $x > 9$



5. $x \leq -3$ OR $x \geq 3$



6. $x \leq -4\frac{1}{2}$ OR $x \geq 3\frac{1}{2}$



7. all real numbers



8. all real numbers



9. $|x - 36.5| \leq 1.5$; $35 \leq x \leq 38$

10. $|x - 23.5| \leq 2.1$; $21.4 \leq x \leq 25.6$

Review for Mastery

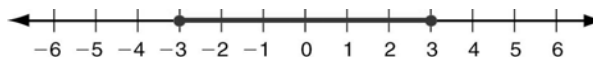
1. $x > -4$ AND $x < 4$



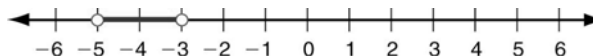
2. $x \geq -3$ AND $x \leq 5$



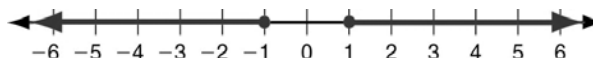
3. $x \geq -3$ AND $x \leq 3$



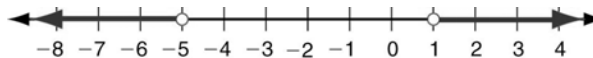
4. $x > -5$ AND $x < -3$



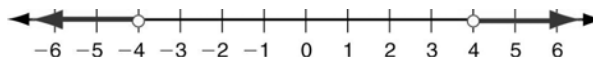
5. $x \leq -1$ OR $x \geq 1$



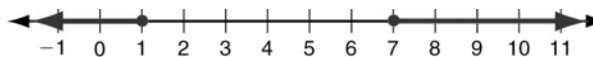
6. $x < -5$ OR $x > 1$



7. $x < -4$ OR $x > 4$

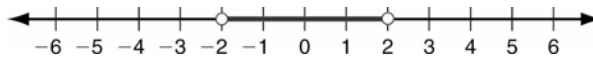


8. $x \leq 1$ OR $x \geq 7$

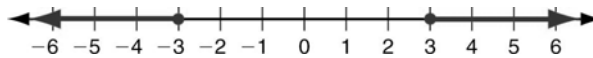


Challenge

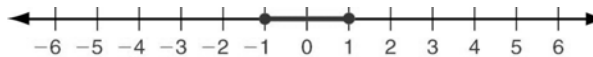
1. $3|x| < 6$; $|x| < 2$; $x > -2$ AND $x < 2$



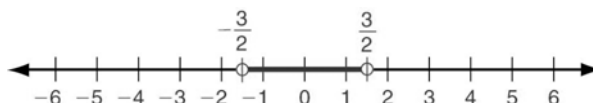
2. $9|x| \geq 27$; $|x| \geq 3$; $x \leq -3$ OR $x \geq 3$



3. $x \geq -1$ AND $x \leq 1$



4. $x > -\frac{3}{2}$ AND $x < \frac{3}{2}$



5. $x < -3$ OR $x > 1$

