Before Class:

☐ Read the objectives on page 286.

☐ Read the Helpful Hint box on page 287.

☐ Complete the exercises:

1. The inequality \(|3x - 1| \geq 7\) is equivalent to __________________________.

2. The inequality \(|2x + 4| \leq 19\) is equivalent to __________________________.

3. The equality \(|14x - 5| = 1\) is equivalent to __________________________.

During Class:

☐ Write your class notes. Neatly write down all examples shown as well as key terms or phrases with definitions. If not applicable or if you were absent, watch the Lecture Series (DVD) for this section and do the same (write down the examples shown as well as key terms or phrases). Insert more paper as needed.

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**Answers:**  
1) \(3x - 1 \leq -7\) or \(3x - 1 \geq 7\)  
2) \(-19 \leq 2x + 4 \leq 19\)  
3) \(14x - 5 = 1\) or \(14x - 5 = -1\)
### Section 4.4 Absolute Value Inequalities

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(Insert additional paper as needed.)
Practice:

[ ] Complete the Vocabulary and Readiness Check on page 290.

[ ] Next, complete any incomplete exercises below. Check and correct your work using the answers and references at the end of this section.

Review this example:
1. Solve: \( |x| \leq 3 \)

The solution set of this inequality contains all numbers whose distance from 0 is less than or equal to 3. Thus, 3, \(-3\), and all numbers between 3 and \(-3\) are in the solution set.

The solutions are \(-3 \leq x \leq 3\).

Your turn:
2. Solve: \( |x| \leq 2 \). Graph the solutions.

Review this example:
3. Solve for \( y \): \( |y-3| > 7 \)

\[
\begin{align*}
y - 3 &< -7 \\
y - 3 &> 7 \\
y - 3 + 3 &< -7 + 3 \\
y - 3 + 3 &> 7 + 3 \\
y &< -4 \\
y &> 10
\end{align*}
\]

The solutions are all numbers \( y \) such that \( y < -4 \) or \( y > 10 \).

Your turn:
4. Solve: \( |y| > 3 \). Graph the solutions.

Review this example:
5. Solve for \( x \): \( |5x+1| + 1 \leq 10 \)

\[
\begin{align*}
|5x+1| + 1 &\leq 10 \\
|5x+1| &\leq 9 \\
-9 &\leq 5x + 1 \leq 9 \\
-10 &\leq 5x \leq 8 \\
-2 \leq x &\leq \frac{8}{5}
\end{align*}
\]

Your turn:
6. Solve: \(-15 + |2x-7| \leq -6 \). Graph the solutions.
Section 4.4 Absolute Value Inequalities

**Review this example:**

7. Solve: \( \frac{x}{3} - 1 \geq -5 \)

\[
\frac{x}{3} - 1 \geq -5 \\
\frac{x}{3} - 1 + 7 \geq -5 + 7 \\
\frac{x}{3} \geq 2 \\
\frac{x}{3} - 1 \leq -2 \quad \text{or} \quad \frac{x}{3} - 1 \geq 2 \\
3 \left( \frac{x}{3} - 1 \right) \leq 3(-2) \quad \text{or} \quad 3 \left( \frac{x}{3} - 1 \right) \geq 3(2) \\
x - 3 \leq -6 \quad \text{or} \quad x - 3 \geq 6 \\
x \leq -3 \quad \text{or} \quad x \geq 9
\]

The solutions are \( x \leq -3 \) or \( x \geq 9 \).

**Your turn:**

8. Solve: \( \frac{x + 6}{3} > 2 \). Graph the solutions.

**Next, insert your homework.** Make sure you attempt all exercises asked of you and show all work, as in the exercises above. Check your answers if possible. Clearly mark any exercises you were unable to correctly complete so that you may ask questions later. **DO NOT ERASE YOUR INCORRECT WORK. THIS IS HOW WE UNDERSTAND AND EXPLAIN TO YOU YOUR ERRORS.**