

Name _____ Date _____ Period _____

Special Cases and Interval Notation - Practice

Algebra II | Unit 2 | Lesson 8 Practice | TEK A2.6.F

Objective: I can write solutions in interval notation and recognize when an absolute value inequality has no solution or all real numbers.

Section 1 — Recall

1. Write $|x| < 5$ in interval notation.

2. Write $|x| \geq 6$ in interval notation.

3. An ISOLATED absolute value compared to a NEGATIVE number:
< or $\leq$ a negative $\rightarrow$ _____
> or $\geq$ a negative $\rightarrow$ _____
4. Why does infinity never get a square bracket?

Section 2 — Apply

5. Solve $|3x - 6| < 9$, write the answer in interval notation, and graph it.

Solution: _____ Interval: _____

Graph the solution:

-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
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6. Solve $2|x + 5| + 9 \leq 3$.

Isolate: _____ Answer: _____

7. Solve $2|x + 5| + 9 \geq 3$. (Same left side as question 6, flipped symbol.)

Isolate: _____ Answer: _____

Section 3 — Challenge

8. Solve $10 - 3|2x - 1| \geq 13$. Isolating divides by a NEGATIVE, so the symbol flips.

After subtracting 10: _____

After dividing by -3: _____

Answer: _____

9. Solve $|2x - 1| - 3 \leq x + 2$ and write the answer in interval notation.

Isolate: _____

Solution: _____ Interval: _____

Section 4 — Explain It

10. Questions 6 and 7 have the SAME left side and differ only in the symbol, yet one has no solution and the other has every real number. Explain how that can happen.
