

Name: _____
PC: Geometric approach to Absolute Value Eqs and Ineqs

Date: _____
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Do Now:

1. Simplify: $\frac{1+c^{-1}-20c^{-2}}{1-5c^{-2}+4c^{-1}}$

Geometric Definition of Absolute Value:

$$|x|$$

$$|x-a|$$

$$|x+a|$$

Examples: Solve each of the following using the geometric definition of absolute value.

1. $|x-1|=2$

2. $|x-1|<2$

3. $|3x+5|=4$

4. $|2x-1|<3$

5. $|7-3x|\leq 2$

6. $|4x-3| > 5$

7. $|6-5x| \geq 16$

Practice

Solve each equation or inequality using the geometric definition of absolute value. When applicable, write solutions in interval notation.

1. $|x| \leq 7$

2. $|t| \geq 5$

3. $|y-5| = 3$

4. $|t-3| < 4$

5. $|5-y| > 3$

6. $|x+8| \geq 3$

7. $|x+1| \leq 5$

8. $|3x-7| \leq 4$

9. $|5y+2| \geq 8$

10. $|4-2t| > 6$

11. $|10+4s| < 6$

12. $|7m+11| = 3$

13. $|4-5n| \leq 8$

14. $\left| \frac{1}{2}x - \frac{3}{4} \right| < 2$

15. $\left| \frac{1}{3}y + \frac{5}{6} \right| = 1$

16. $|x+4| < -1$

Note:

For all real numbers x and a : $|a-x| = |x-a|$