0.1 MAT 171 - Section 1.7: Linear and Absolute Value Inequalities

Inequalities and the English Translation			
$a < b$		$a \leq b$	
$a > b$		$a \geq b$	

Interval and Inequality Notation			
Inequality	Interval	Set-Builder	Graph
$a \leq x \leq b$			
$a \leq x < b$			
$a < x \leq b$			
$a < x < b$			
$x \geq a$			
$x > a$			
$x \leq b$			
$x < b$			

Graph and Write in the Notation **Not** Given			
Inequality	Interval	Set-Builder	Graph
$-2 < x \leq 5$			
$x < -3$			
	$(-4, 1]$		
	$[3, \infty)$		

Solve and Graph:

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1) $6x + 3 < 3x + 12$

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2) $-\frac{7}{8}x < -14$

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3) $-\frac{y-3}{6} - 1 > \frac{y}{3}$

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3) $-8 \leq 3r - 1 \leq -1$

1: Definition of Absolute value

The absolute value of x is represented by $|x|$ and is defined as follows:

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

Evaluate:

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4) a. $|6| =$ _____

b. $|-5| =$ _____

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5) $|20 - 5y| = 50$

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6) $3|2x - 1| = 21$

Solve and write the answer in inequality and interval notation.

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7) $|4 - 5z \leq 8$

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8) $\frac{b}{10} - 3 > 8$
