4.6

24

Solve Absolute Value Inequalities

Solve and Graph on a number line

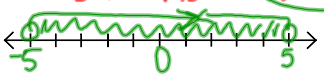
$|x| < 5$

$x < 5$ and $x > -5$

$|x| = 5$

$x = 5$ or $x = -5$

Solution is the overlapping section



$-5 < x < 5$

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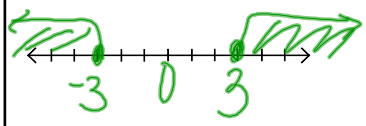
$|n| \geq 3$

$n \geq 3$ OR $n \leq -3$ or



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Guided Practice:

1) $|x| \leq 8$

2) $|u| < 2.5$

3) $|v| > \frac{3}{4}$

Oct 12-8:09 PM

Key Concept

Solving Absolute Value Inequalities

The inequality $|ax + b| < c$ where $c > 0$ is equivalent to the compound inequality

$-c < ax + b < c$

The inequality $|ax + b| > c$ where $c > 0$ is equivalent to the compound inequality

$ax + b < -c$ or $ax + b > c$

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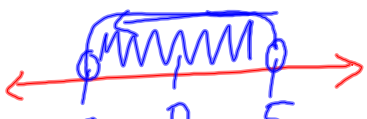
OR

$|m + 6| < 11$

$m + 6 < 11$ AND $m + 6 > -11$

$-6 \quad -6 \qquad -6 \quad -6$

$m < 5$ and $m > -17$



$-17 < m < 5$

Oct 13-5:17 PM

AND

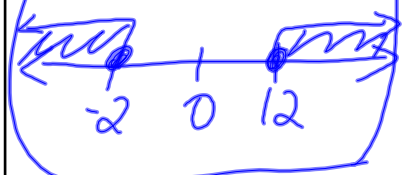
$|2x - 10| \geq 14$

$2x - 10 \geq 14$ OR $2x - 10 \leq -14$

$+10 \quad +10 \qquad +10 \quad +10$

$\frac{2x}{2} \geq \frac{24}{2} \qquad \frac{2x}{2} \leq \frac{-4}{2}$

$x \geq 12$ OR $x \leq -2$



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OR

$3|5m - 6| - 8 \leq 13$

$+8 \quad +8$

$\frac{3|5m-6|}{3} \leq \frac{21}{3}$

$|5m-6| \leq 7$

AND

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What is the solution of the inequality $9 - |x - 5| > 3$

A) $x < 11$
B) $-11 < x < 1$
C) $-1 < x < 11$
D) $x < -1$ or $x > 11$

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AND OR

$|z - 1| \geq 0$ $\quad |12| \geq -1$ $\quad |13| \geq -1$

$|c| \geq -1$

all Real numbers

$|n| \leq -9$ no solution

$|w| < 0$ no solution

$|k| \leq 0$ $\quad K \leq 0$ and $K \geq 0$

$K = 0$

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The absolute deviation of x from 10 is greater than 3.

absolute deviation = $|x$ - given value$|$

$3 < |x - 10|$

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AND OR

$\frac{1}{2}|3w - 4| + 17 > 7$

$-17 \quad -17$

$2\left[\frac{1}{2}|3w-4|\right] > [-10]2$

$|3w-4| > -20$

all real numbers

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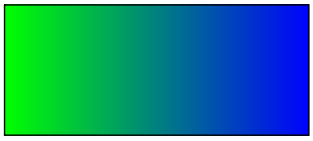
Assignment:
Page229 ; 3-27 odds only
check answers in back of book



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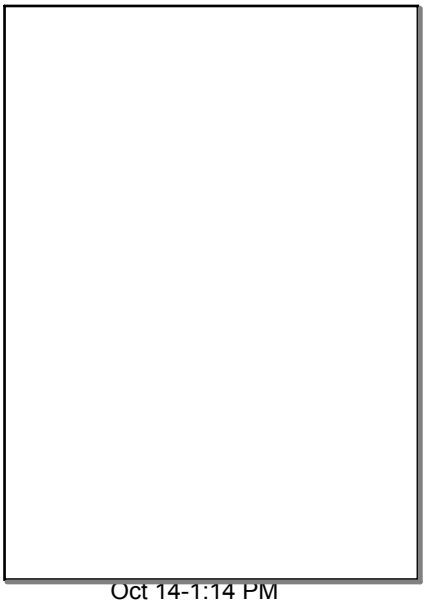

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