1 2 3 4 5 6 7 8 9 10

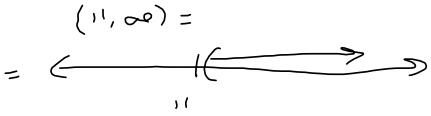
x. Score: 0 of 1 pt H

Choose the inequality whose solution set is $(11, \infty)$.

Select the correct choice below and fill in the appropriate answer box.

- A. $\{x \mid x < \square\}$
- B. $\{x \mid x \leq \square\}$
- C. $\{x \mid x > \square\}$
- D. $\{x \mid x \geq \square\}$

$(11, \infty) =$



$= \{x \mid x > 11\}$

1 2 3 4 5 6 7 8 9 10

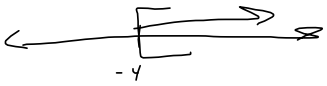
Ex. Score: 0 of 1 pt

Write the solution set to $x \geq -4$ in interval notation.

The solution set is [ ]. (Type your answer in interval notation.)

$\{x \mid x \geq -4\}$

=



= $[-4, \infty)$

1 2 3 4 5 6 7 8 9 10

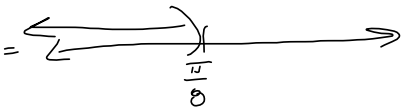
x. Score: 0 of 1 pt

Write the solution set using interval notation.

$x < \frac{\pi}{8}$

The solution is ☐.
(Type your answer in interval notation.)

$\{x \mid x < \frac{\pi}{8}\}$



$= (-\infty, \frac{\pi}{8})$

1 2 3 4 5 6 7 8 9 10

x. Score: 0 of 1 pt HW Score: 0%

Solve the given inequality. Write the solution set using interval notation, then graph it.

$5x - 13 > 12$

The solution set is ☐. (Type your answer in interval notation.)

$5x - 13 > 12$

$+13 = +13$

$5x > 25$

$\frac{5x}{5} > \frac{25}{5}$

$x > 5$

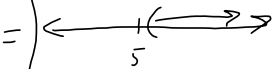
$5x - 13 > 12$

$5x > 25$

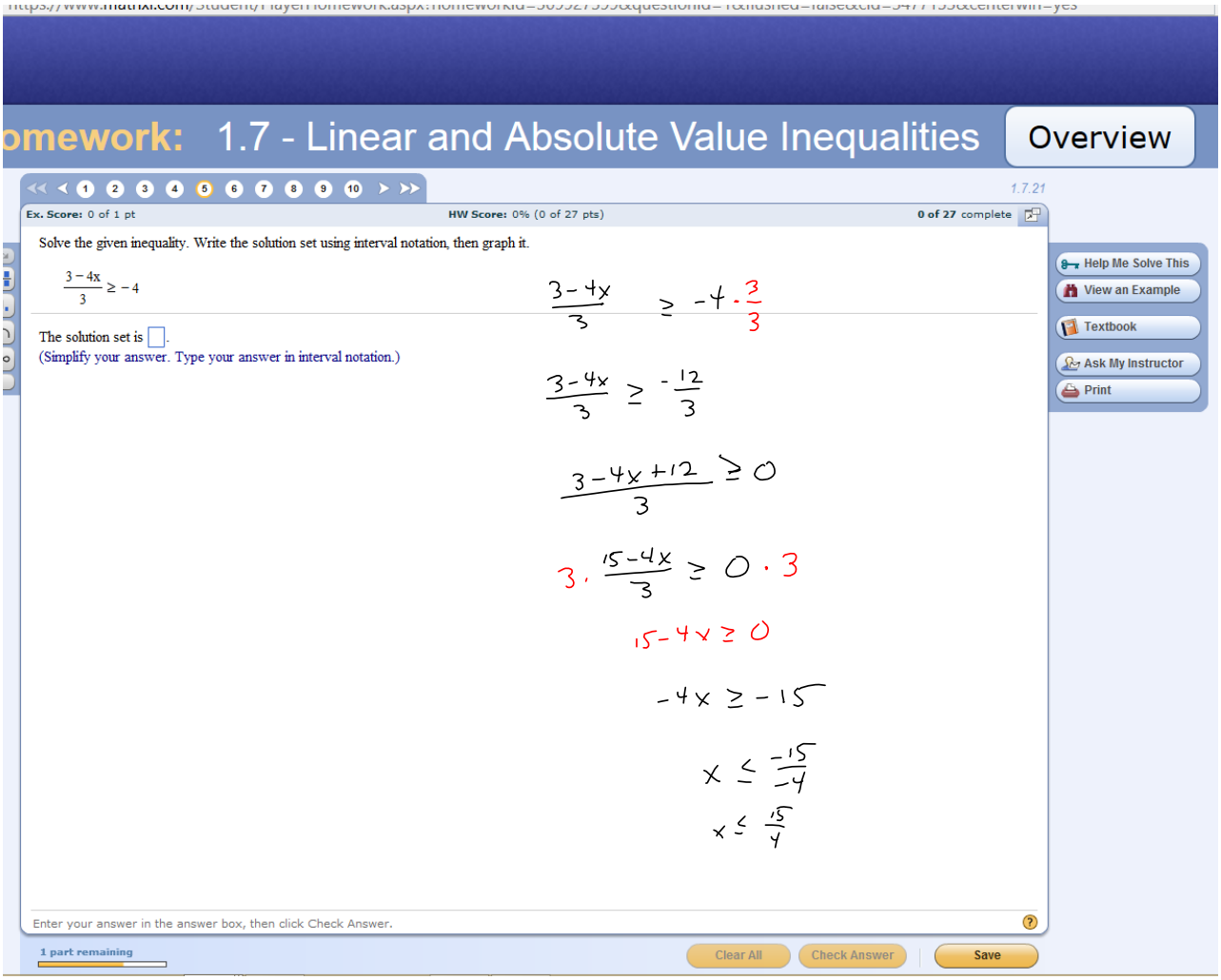
$x > \frac{25}{5} = 5$

$x > 5$

$\{x \mid x > 5\}$

$=$ 

$(5, \infty)$


omework: 1.7 - Linear and Absolute Value Inequalities
Overview
1.7.21
Ex. Score: 0 of 1 pt
HW Score: 0% (0 of 27 pts)
0 of 27 complete
Solve the given inequality. Write the solution set using interval notation, then graph it.
$\frac{3-4x}{3} \geq -4$
The solution set is .
(Simplify your answer. Type your answer in interval notation.)
$\frac{3-4x}{3} \geq -4 \cdot \frac{3}{3}$
$\frac{3-4x}{3} \geq -\frac{12}{3}$
$\frac{3-4x+12}{3} \geq 0$
$3 \cdot \frac{15-4x}{3} \geq 0 \cdot 3$
$15-4x \geq 0$
$-4x \geq -15$
$x \leq \frac{-15}{-4}$
$x \leq \frac{15}{4}$
Help Me Solve This
View an Example
Textbook
Ask My Instructor
Print
Enter your answer in the answer box, then click Check Answer.
1 part remaining
Clear All
Check Answer
Save

1 2 3 4 5 6 7 8 9 10

Ex. Score: 0 of 1 pt

Write the solution set using interval notation and graph it.

$-4(z-7) > 3z-7$

The solution is $\square$.

(Type your answer in interval notation.)

$(-\infty, 5)$

$-4(z-7) > 3z-7$

$-4z+28 > 3z-7$

$-3z \quad -28 = -3z \quad -28$

$-7z > -35$

optional $\frac{-7z}{-7} < \frac{-35}{-7}$

$z < 5$

1 2 3 4 5 6 7

x. Score: 0 of 1 pt

Read the graph to solve the inequality.

$3.6 - 2.4x < 0$

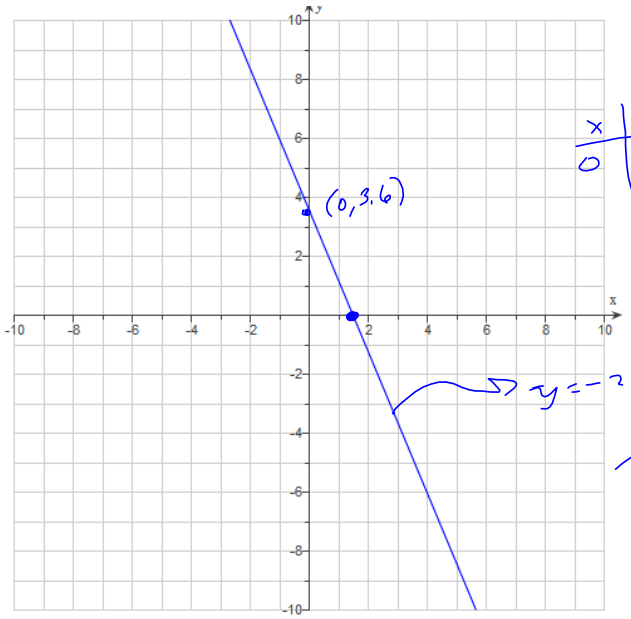
The solution set in interval form is

A. $[1.5, \infty)$

B. $(-\infty, 1.5]$

C. $(1.5, \infty)$

D. $(-\infty, 1.5)$



x	y
0	3.6

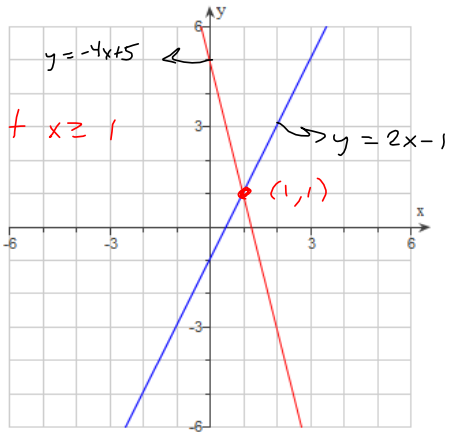
1 2 3 4 5 6 7 8 9 10

x. Score: 0 of 1 pt HW Score: 0% (0 of 27

Use the graphs of $y_1 = 2x - 1$ and $y_2 = -4x + 5$ to the right to solve the following inequality.

$2x - 1 \geq -4x + 5$

$x \in [1, \infty)$



Want $x \geq 1$

Write the solution set. Select the correct choice below, and fill in the answer box if necessary.

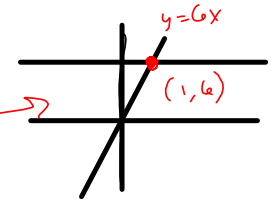
A. The solution set is ☐.
(Type your answer in interval notation.)

B. The solution set is ∅.

$2x - 1 \geq -4x + 5$

$+4y \quad +1 = +4x \quad +1$

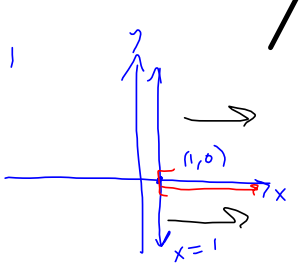
$6x \geq 6$



$y = 6$

Want $x \geq 1$

$x \geq 1$



Everything to right of $x=1$ (including $x=1$)

1 2 3 4 5 6 7 8 9 10

. Score: 0 of 1 pt HW S

Write $(4,7)\cup(-4,\infty)$ as a single interval.

Select the correct choice below, and fill in the answer box if necessary.

A. $(4,7)\cup(-4,\infty) =$ ☐ (Type your answer in interval notation.)

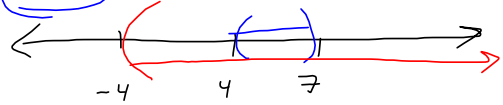
B. $(4,7)\cup(-4,\infty) = \varnothing$

U = Union

$A \cup B$

$= \{x \mid x \in A \text{ OR } x \in B\}$

OR



$= \{x \mid 4 < x < 7 \text{ OR } -4 < x\}$

$= (-4,\infty) = \{x \mid -4 < x\}$

$= \{x \mid x > -4\}$

1 2 3 4 5 6 7 8 9 10

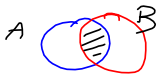
Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Write the following expression as a single interval.

$(-\infty,3) \cap [2,10]$

$\cap$ = AND = Intersection

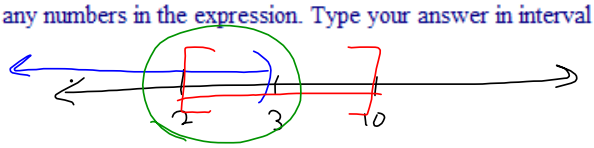
$A \cap B = \{x \mid x \in A \text{ AND } x \in B\}$



Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The interval is ☐.
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type your answer in interval notation.)

B. The solution is $\varnothing$, the empty set.



$= [2,3)$

11 12 13 14 15 16 17 18 19 20

x. Score: 0 of 1 pt

Solve the compound inequality.

$4 > 8 - x$ and $2 + 0.5x < 6$

The answer is ☐. (Type the solution set in interval notation.)

$4 > 8 - x$

$-4x - 4 = -4 + x$

$x > 4$

and

AND

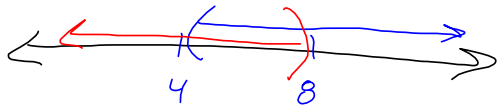
$2 + .5x < 6$

$.5x < 4$

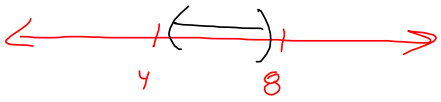
$x < \frac{4}{.5} = 8$

$x < 8$

AND = overlap.



=



$= (4, 8)$

$= \{x \mid x > 4 \text{ and } x < 8\}$

11 12 13 14 15 16 17 18 19 20

Ex. Score: 0 of 1 pt **HW Score:** 0% (0 of 27 pts)

Solve the following compound inequality. Write the solution set using interval notation and graph it.

$1 - x < 13 + 2x$ or $6x + 5 > x$

OR

Select the correct choice below, and fill in the answer box if necessary.

A. The solution set is ☐.
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

B. The solution set is ∅.

$1 - x < 13 + 2x$ OR $6x + 5 > x$

$-1 \quad -2x = -1 \quad -2x$

$-3x < 12$

$x > \frac{12}{-3} = -4$

$x > -4$

OR

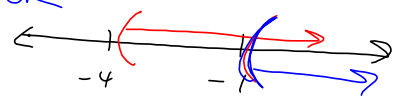
$5x > -5$

$x > \frac{-5}{5} = -1$

$x > -1$

$\{x \mid x > -4 \text{ OR } x > -1\}$

OR



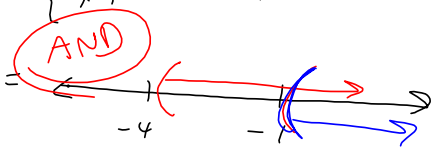
$= (-4, \infty)$

$= \{x \mid x > -4\}$

Contrast: If it's an AND

$\{x \mid x > -4 \text{ AND } x > -1\}$

AND



$= (-1, \infty)$

11 12 13 14 15 16 17 18 19 20

x. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Solve the following compound inequality. Write the solution set using interval notation and graph it.

$\frac{1}{3}(x+3) > 3$ or $0 < 7 - x$

Select the correct choice below, and fill in the answer box if necessary.

A. The solution set is ☐.
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

B. The solution set is ∅.

$\frac{1}{3}(x+3) > 3$ OR

$\frac{x+3}{3} > \frac{3}{1} \cdot \frac{3}{3}$

$\frac{x+3}{3} > \frac{9}{3}$

$x+3 > 9$

We CAN ditch/clear fractions by multiplying by +3.

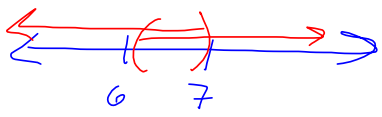
$x > 6$

↳ when 3 becomes x+7, we CAN NOT clear fractions this way

$0 < 7 - x$

$+x = +x$

OR $x < 7$



$= (-\infty, \infty) = \mathbb{R}$

Contrast with AND

AND $\{x \mid x > 6 \text{ AND } x < 7\}$

$= (6, 7)$

11 12 13 14 15 16 17 18 19 20

Ex. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Solve the inequality and determine the graph of the solution set. Express the solution set using interval notation.

$-2 < 2x+2 \le 6$ → Compound Inequality: "AND"

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The solution set is ☐. (Type your answer in interval notation.)

B. The solution set is the empty set.

$$\begin{array}{rcccl} -2 & < & 2x+2 & \le & 6 \\ -2 & = & -2 & = & -2 \\ \hline -4 & < & 2x & \le & 4 \end{array}$$

$$-2 = -\frac{4}{2} < x \le \frac{4}{2} = 2$$

$$\{x \mid -2 < x \le 2\}$$

$$= (-2, 2]$$

This is incorrect

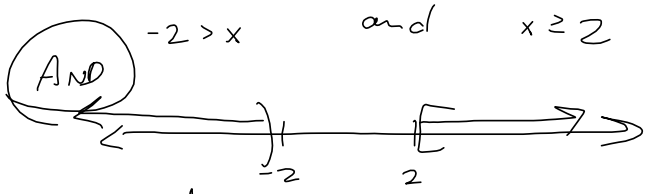
$-2 > 2x+2 \ge 6$ says

$-2 > 2x+2$ and $2x+2 \ge 6$

$-4 > 2x$ and $2x \ge 4$

$-2 > x$ and $x \ge 2$

AND



No overlap

No solution.

$-2 > 2x+2 \ge 6$ is a contradiction from the start!

11 12 13 14 15 16 17 18 19 20

Ex. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Solve the following absolute value inequality. Write the solution set using interval notation and graph it.

$|10-4x| \le 3$

Select the correct choice below, and fill in the answer box if necessary.

$|10-4x| \le 3$

A. The solution set is ☐.
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

B. The solution set is ∅.

$|A| < B$

$A < B$ AND $A > -B$

$(-B < A < B$ ok$)$

$|A| > B$

$A > B$ OR $A < -B$

$(-B > A > B$ is BAD$)$

$|A| <$ Negative

NEVER!

∅

$|A| >$ Negative

Always!

$(-\infty, \infty)$

$|10-4x| \le 3$

$10-4x \le 3$ AND $10-4x \ge -3$

$-4x \le -7$

$\frac{-4x}{-4} \ge \frac{-7}{-4}$

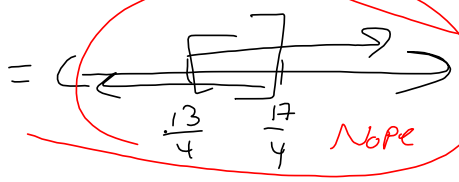
$x \ge \frac{-7}{-4} = \frac{7}{4}$

$-4x \ge -13$

$x \le \frac{-13}{-4} = \frac{13}{4}$

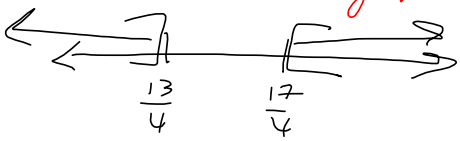
Set-builder: $\{x \mid x \ge \frac{17}{4}$ AND $x \le \frac{13}{4}\}$

wrong: $\frac{7}{4}$, not $\frac{17}{4}$



Nope

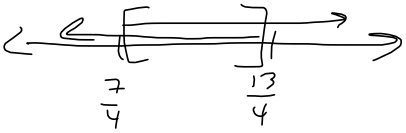
correct line graph:



$= [\frac{13}{4}, \frac{17}{4}]$

Real ANSWER

$\{x \mid x \ge \frac{7}{4}$ and $x \le \frac{13}{4}\}$



$= [\frac{7}{4}, \frac{13}{4}]$

11 12 13 14 15 16 17 18 19 20

Ex. Score: 0 of 1 pt **HW Score:** 0% (0 of 27 pts)

Solve the inequality, then graph the solution set.

$|x-7| \geq 1$

$|A| \geq B$

$A \geq B$ OR $A \leq -B$

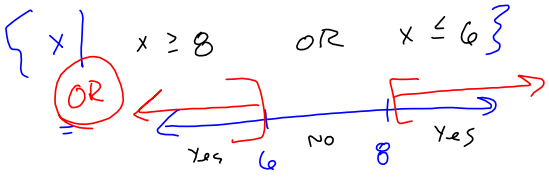
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The solution set is ☐. (Type your answer in interval notation.)

B. The solution set is $\varnothing$.

$x-7 \geq 1$ OR $x-7 \leq -1$

$\{x \mid x \geq 8$ OR $x \leq 6\}$



$= (-\infty, 6] \cup [8, \infty)$

11 12 13 14 15 16 17 18 19 20

x. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Solve the following absolute value inequality. Write the solution set using interval notation and graph it.

$|7-2x| < -1$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The solution set is [ ]. (Type your answer in interval notation.)

B. The solution set is $\varnothing$.

$|A| < -1$

Never!

$\varnothing$

$7-2x < -1$ AND $7-2x > 1$

$-2x < -8$ $-2x > -6$

$\{x \mid x > \frac{-8}{-2} = 4$ AND $x < \frac{-6}{-2} = 3\}$

$= \varnothing$

11 12 13 14 15 16 17 18 19 20

x. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

Solve the following absolute value inequality. Write the solution set using interval notation and graph it.

$$\left|\frac{x-8}{3}\right| > 1$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The solution set is ☐.
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

B. The solution set is ∅.

$\left|\frac{x-8}{3}\right| > 1 \Rightarrow |x-8| > 3$

Be careful of getting bad habits.

$\frac{|x-8|}{|3|} > 1$

$\frac{|x-8|}{3} > 1 \qquad 3 \cdot \frac{|x-8|}{3} > 1 \cdot 3$

$|x-8| > 3$

$\frac{|x-8|}{3} > \frac{1}{3}$

$|x-8| > 1$

11 12 13 14 15 16 17 18 19 20

x. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

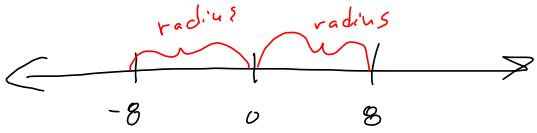
Write an inequality of the form $|x-a|<k$ or of the form $|x-a|>k$ so that the inequality has the given solution set.

$(-8,8)$ Find the center $\frac{-8+8}{2}=0$ is middle

Write the inequality. Select the correct choice and fill in the appropriate answer boxes.

- A. $|\square|<\square$
- B. $|\square|\leq\square$
- C. $|\square|>\square$
- D. $|\square|\geq\square$

$8-0=8$ is "radius"



$|x-\text{middle}|<\text{radius}$

$|x-0|<8$

$|x|<8$

11 12 13 14 15 16 17 18 19 20

ex. Score: 0 of 1 pt HW Score: 0% (0 of 27 pts)

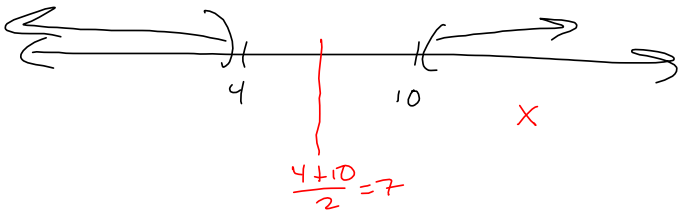
Write an inequality of the form $|x-a|<k$ or of the form $|x-a|>k$ so that the inequality has the following solution set.

(4,10)

The inequality of the form $|x-a|<k$ or of the form $|x-a|>k$ that has the solution set (4,10) is .

$(-\infty, 4) \cup (10, \infty)$

center:



$\frac{4+10}{2} = 7$

$|x-7| > 3$

$10-7=3$ } Radius

$7-4=3$ }