

Unit 5: Inequalities Containing Absolute Value and Square Root signs

Solving for $| |$ is same procedure even with inequality

Solve

$$-|3x - 4| - 4 \leq -6 + 4$$

$$|3x - 4| \leq \frac{-2}{-1}$$

$$|3x - 4| \geq 2$$

$$3x - 4 \geq 2 + 4$$

$$3x \geq 6$$

$$x \geq 2$$

$$-(3x - 4) \geq 2$$

$$-3x + 4 \geq 2$$

$$-3x \leq -2$$

$$3x \leq 2$$

$$x \leq \frac{2}{3}$$

Ans interval notation

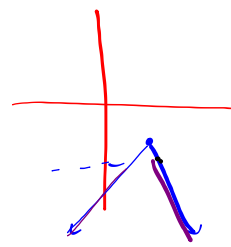
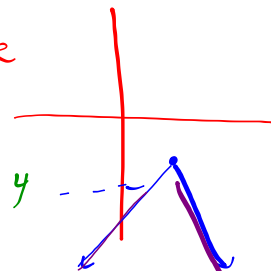
$$-\infty, \frac{2}{3}] \cup [2, \infty$$

graph notation



step i. isolate the bracket.

step ii. Drop the $| |$ brackets by doing 2 cases.



Solve

$$4 \leq -|x + 5| + 8$$

$$\frac{-4}{-1} \leq \frac{-|x + 5|}{-1}$$

$$4 \geq |x + 5|$$

$$4 \geq x + 5$$

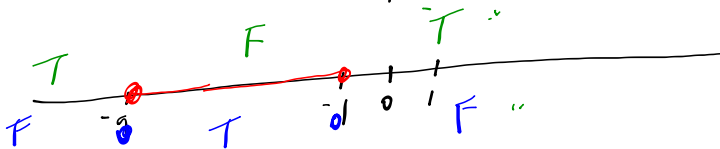
$$-1 \geq x$$

and

$$\frac{4}{-1} \geq \frac{-(x + 5)}{-1}$$

$$-4 \leq x + 5$$

$$-9 \leq x$$



$$\{-9, -1\}$$

B
E
D
M
A
S

• final answer
in interval notation
and set builder's.

Solve

$$-2 + 2|2x - 3| \geq 12$$

Solving Inequalities w Square Roots

Solve

step i.
Solve by
doing o.o.

- .B
- .E
- .D
- .m
- .A
- .S

$$i \quad 2\sqrt{-(x+3)} - 2 \geq 1+2$$

$$\frac{2\sqrt{-(x+3)}}{2} \geq \frac{3}{2}$$

$$\left(\sqrt{-(x+3)}\right) \geq \left(\frac{3}{2}\right)^2$$

$$\frac{-(x+3)}{-1} \geq \frac{9}{-1}$$

$$x+3 \leq -\frac{9}{4} \quad -3 \times 4$$

$$x \leq -\frac{21}{4}$$

$$x \leq -5.25$$

$$(-\infty, -5.25]$$

Step ii. Construct
2nd implicit
inequality

$$b(x-h) \geq 0$$

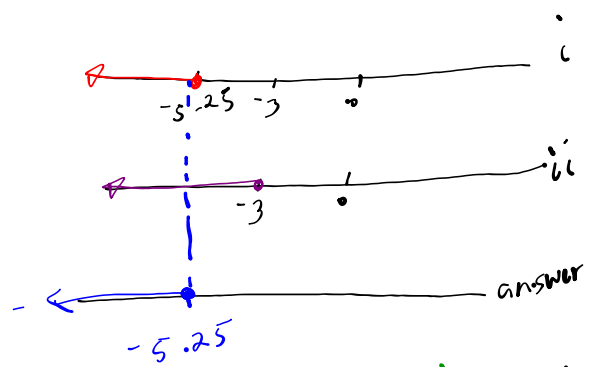
step iii
final answer
is the intersection
of two solution
sets

$$ii \quad \frac{-(x+3)}{-1} \geq \frac{0}{-1}$$

$$x+3 \leq 0$$

$$x \leq -3$$

Where
they overlap



Solve

$$2\sqrt{3-x} \leq 8$$

$$a\sqrt{b(x-h)} + k = y$$

sketch-

Review	Composite
Q 3 - (4)	P 21
P 5.58	#1
5.60	

P 2.25 - 2.26
multiple choice
question
5 - 6

Unit 6: Word Questions Containing Inequalities

pg 6.1

ex 1.

step i

→ sketch
w/ x/y axis
label

$$p(x) = x^2 - 240x - 2300$$

$$y = ax^2 + bx + c$$

step ii. sub in
value of y and
construct inequality
by choosing \leq or \geq
(sentence translate)

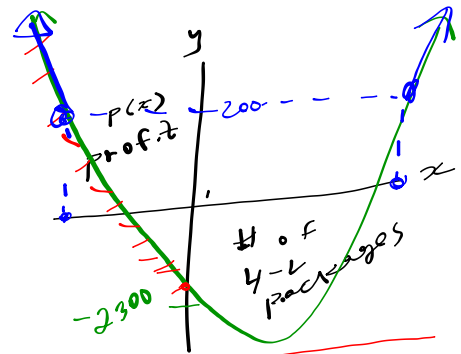
$$200 \ ? \ x^2 - 240x - 2300$$

\leq
 \geq

step iii Solve
and adjust final
answer with represent
to context

$$200 \leq \underbrace{x^2 - 240x - 2300}_{\text{profit}}$$

Point of reference



P 6.14
#6

When will the
tree measure
more than 3 metres
tall?

#4 p 6.8 | #2 a) p 6.16

Review

Q 3 - (4)
P 5.58
5.60

Composite

P 2.21
#1

P 2.25 - 2.26
multiple choice
question
#5 - 6

