L 3 Solving inequalities in a domain

A **domain** is the set of all possible values for the unknown

Steps to solving Word Problems:

1. Read the problem. Highlight key words and important information.
2. Draw a diagram (if applicable) and label it.
3. Define your variables (let statement with domain)
4. Choose and write the formulas you will need.
5. Solve the problem showing all your work neatly.
6. Check your work (validate).
7. Write a conclusion respecting the domain ($\therefore$).

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Warm up: Solve, then list all possible values in the given domain

a) $x + 1 \leq 4$

1. If $x \in \mathbb{R}$:

2. If $x \in \mathbb{Z}$:

3. If $x \in \mathbb{N}$

b) $-3x > 6$

1. If $x \in \mathbb{R}$:

2. If $x \in \mathbb{Z}$:

3. If $x \in \mathbb{N}$

no solution on N.L

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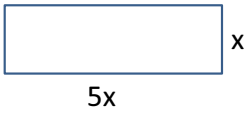
Ex 1: The length of a rectangle is 5 times its width.

Find the width if the area is at most 500 m^2.

Let width be $x \in \mathbb{R}_+^*$

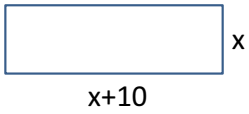
Then length be 5x



2) The length of a rectangular field measures 10 m more than its width. The perimeter of the field is more than 80 m but less than 100 m. In what interval will the width of the field be?

Let width be $x \in \mathbb{R}_+^*$

Then length is x + 10



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3) A taxi driver charges an initial fee of $1.25 and then $0.75 per km traveled. In what interval is the distance traveled if the cost of the trip is more than $11 but less than $14?

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Practice:
W.S. #2 Solving Inequalities word problems

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