Lucy's Linear Equations and Inequalities Task

Lucy has been assigned the following linear equations and inequality word problems. Help her solve each problem below by using a five step plan.
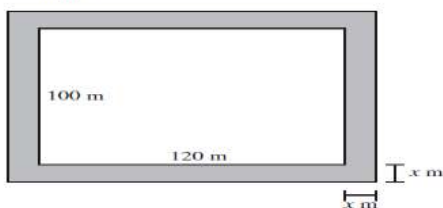
- Draw a sketch (if necessary)
- Define a variable
- Set up an equation or inequality
- Solve the equation or inequality
- Make sure you answer the question that was asked

1. The length of a rectangle is 4 cm more than the width and the perimeter is at least 48 cm. What are the smallest possible dimensions for the rectangle?

2. A rectangle is 12m longer than it is wide. Its perimeter is 68m. Find its length and width.

3. A rectangular field is 100 meters in width and 120 meters in length. The dimensions of the field will be expanded by x meters in each direction, as shown in the diagram. Write an equation that describes the perimeter of the new field in terms of x.

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100 m

120 m

x m

x m

Which function describes the perimeter of the new field in terms of x?

A $f(x) = 220 + 4x$
B $f(x) = 220 + 8x$
C $f(x) = 440 + 4x$
D $f(x) = 440 + 8x$

4. The sum of 38 and twice of Kyle's age is 124. Find Kyle's age.

5. Alex has twice as much money as Jennifer. Jennifer has $6 less than Shannon. Together they have $54 dollars. How much money does each girl have? (Hint – Use Shannon as your variable)

6. Ten more than 6 times a number is 4 less than 4 times the number. Find the number.

7. Find three consecutive integers such that the sum of twice the smallest and 3 times the largest is 126.

8. Find two consecutive even integers such that the sum of the larger and twice the smaller is 62.

9. There are three quizzes in Unit 1 before the test. A student received grades of 75 and 81 on the first two quizzes. What grade must the student earn on the last exam to get an average of no less than 80 before the test? (Remember how to find the average)