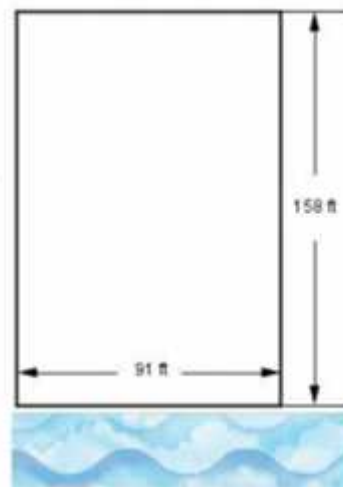


UNIT 5 Project (24 pts)

Demonstrate your knowledge by giving clear, concise solutions to each problem. Be sure to include all relevant drawings and justify your answers (show all your work). You may show your solution in more than one way to investigate beyond the requirements of the problem.

1. An architect is designing a house for the Mullet family. In the design he must consider the desires of the family and the local building codes. The rectangular lot on which the house will be built has 91 feet of frontage on a lake and is 158 feet deep.



a. The building codes state that one can build no closer than 10 feet to the lot line. Write an inequality and solve to see how long the front of the house facing the lake may be. (3 pts)

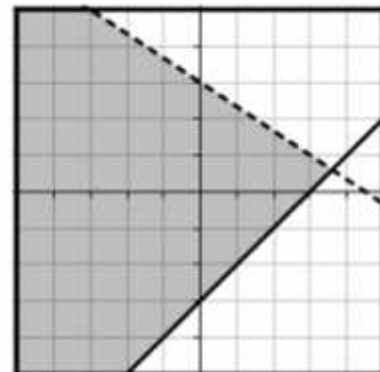
b. The Mullets requested that the house contain no less than 2800 ft² and no more than 3200 ft² of floor space. Write an inequality to represent the range of permissible widths for the house. (3 pts)

c. The Mullets have asked that the cost of the house be about \$175,000 and are willing to deviate from this price no more than \$20,000. Write an open sentence involving an absolute value and solve. Give the meaning of the answer. (3 pts)

2. a. Write a word problem involving an inequality with more than on operation. (3 pts)

b. Solve the inequality in part a and give the meaning of the answer. (3 pts)

3. a. Write a system of inequalities whose solution is represented by the shaded region shown on the graph at the right. (3 pts)



b. Name a point that is a solution of the system of inequalities. **(3 pts)**

c. Name a point that is not a solution to the system of inequalities. **(3 pts)**