Math 112 Written Homework: Ratio	onal Functions	Student Name:
		Instructor: Laird
		Math 112 Section: 062
<u>Directions</u> : Show all work, and ans sentences. All graphs should be dro	*	ed. Explanations should be given in complete and be fully labeled.
•	ing 10 gallons per minute of v	er into which 5 pounds of sugar have been vater into the tank at the same time sugar is
Find the concentration (pou	nds per gallon) of sugar in th	e tank after 15 minutes.
Is that a greater concentration	on than at the beginning?	
Let <i>x</i> represent the number of into the tank.	of minutes that have passed sin	nce the water and sugar started getting poured

Create an equation that represents the amount of sugar in the tank	Create an equation that represents the amount of water in the tank	

Write an equation that represents the concentration (**pounds per gallon**) of sugar in the tank after x minutes.

Thinking about this problem in context name one constraint (real life restriction) that this problem would have that would affect the outcomes we could obtain from this equation.

Math 112	Written Homewor	k: Rational Functi	ons S
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2. An oil company estimates that the cost, C, in dollars, of cleaning up x percent of an oil spill can be modeled by the equation $C = \frac{kx}{100-x}$, where $0 \le x < 100$, and k is a constant. The company has data that indicates that spending \$400,000 will clean up 70% of an oil spill.

Define the variables:

x:

C :

Use this information to find the value of k.

Use the model to predict the percentage of an oil spill that can be cleaned up if the company's budget is \$600,000.

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3.	The manufacturer of the water toy "Silly Soaker" quotes a variable cost of \$4.25 per unit and fixed costs of \$5,000.				
	Define the variables (make sure to include the letter you are going to use throughout the rest of problem):				
	Independent:				
	Dependent:				
	Create a function to represent the average cost per unit to manufacture the Silly Soaker.				
	Use this model to determine the average cost per	unit for a level of production of $x = 10,000$ units.			
	What is the horizontal asymptote of this function	a, and what does it represent?			