

NAME: _____ Score _____/10

Please **print** your name**SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION**

- The set of **Irrational** Numbers consists of all numbers which can not be written as fractions.
- An **equation** is a mathematical statement which contains an = symbol.
- A conditional equation is an equation which is **true** when some real numbers are substituted for the variables and is **false** when some real numbers are substituted for the variables.
- The **graph** of an equation consists of all the points, and only those points, whose coordinates are solutions of the equation.
- T F** The graph of $3x - 7 = 12$ is a line.
- T F** If $5x + 7$ is added to both sides of the equation $3x^4 + 7x^3 + x = 7x^2 - 4x + 43$ to obtain the new equation $3x^4 + 7x^3 + 6x + 7 = 7x^2 + x + 50$, then the two equations have the same solution set.
- Use the roster method to describe the set $\{x|x \in \mathbb{Z} \text{ and } |x| < 4\} = \{-3, -2, -1, 0, 1, 2, 3\}$
- (3 pts). A rectangular piece of plastic is three times as long as it is wide. Its area is 5100 sq.in. What are its dimensions? Show your work. Define the variables. Use words as appropriate. Your work should justify the conclusion I have presented at the bottom of the page. Trial and error type guessing is not acceptable.

Let x be the width of the plastic.

Then its length is $3x$.

The area is 5100.

The area is $3x^2$.

Because these two expressions represent the same quantity, they must be equal.

$$3x^2 = 5100$$

$$x^2 = 1700$$

$$x = \sqrt{1700} = \sqrt{100 \cdot 17} = 10\sqrt{17}$$

$$3x = 30\sqrt{17}$$

The width of the plastic is $10\sqrt{17}$ inches and its length is $30\sqrt{17}$ inches.