

NAME: _____ Score _____/10

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

1. The set of **Irrational** Numbers consists of all numbers which cannot be written as fractions.
2. Two equations are **equivalent** if they have the same solution sets.
3. 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.
4. The graph of an equation consists of all the points, and only those points, whose coordinates are **solutions** of the equation.
5. The equation $3x - 7 = 12$ is a **linear** equation in one variable. **Conditional** is also an acceptable answer.
6. **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.
7. Use set builder notation to describe the interval $(3, 5]$. $(3, 5] = \{x \in \mathbb{R} \mid 3 < x \leq 5\}$
8. (3 pts). Joe has \$4.45 in dimes and quarters. If he has a total of 25 coins, how many dimes does he have? He only has dimes and quarters. 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 number of dimes.

Then $25 - x$ is the number of quarters.

The total value of the coins is 4.45

The total value of the coins is $0.10x + 0.25(25 - x)$

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

$$0.10x + 0.25(25 - x) = 4.45$$

$$10x + 25(25 - x) = 445$$

$$10x + 625 - 25x = 445$$

$$-15x = -180$$

$$x = 12$$

Joe has 12 dimes and 13 quarters.