

NAME: \_\_\_\_\_

Average Score 50%Please **print** your name**SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION**

1. (1 pt.) The set of **Rational** Numbers consists of all numbers which can be written as fractions. Nearly everyone missed this question. Study Section P2 (Page 12 of your text) and the essay Sets of Numbers under Special Topics on DrDelMath.Com.

2. (1 pt.) An equation is a mathematical statement which contains an **equal** symbol. I also accepted the symbol = instead of the word equal. The word equals is not correct in this sentence.

3. (1 pt.) 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. (1 pt.) T      **F**      The graph of  $3x - 7 = 12$  is a vertical line.

5. (2 pts.) Determine whether 2 is a solution of the equation  $x^3 + x^2 - 5 = 4x$ . **Neatly show your work. No work – No credit. End your work with a clearly stated conclusion.**

**$2^3 + 2^2 - 5 = 4(2)$  is false. Therefore 2 is not a solution of the equation  $x^3 + x^2 - 5 = 4x$ .**  
Showing the following computations is okay but is not required.

$$2^3 + 2^2 - 5 = 4(2)$$

$$8 + 4 - 5 = 8$$

$$7 = 8 \text{ is false}$$

6. (2 pts.) Calculate the area of a circle with radius 5. **I want to see the formula you plan to use and I want an exact answer not an approximation.**

$$A = \pi r^2 = \pi 5^2 = 25\pi$$

As soon as you replace  $\pi$  with a decimal such as 3.14, you are working with an approximation and you will not obtain an exact answer.

As soon as you start using a calculator to answer this question, you are working with an approximation and you will not obtain an exact answer.

$\pi$  is a symbol for a number just like 3, -8,  $\frac{3}{5}$ ,  $\sqrt{7}$  are symbols for numbers. You must be able to work with these symbols for numbers without converting to a decimal equivalent or a decimal approximation of the numbers represented by these symbols.

7. (2 pts.) Write the formula for the volume of a cylinder.

**The volume of a cylinder is  $V = \pi r^2 h$**

It would be more correct to write:

The volume of a cylinder with radius  $r$  and height  $h$  is  $V = \pi r^2 h$ .

However, because this is such a common geometric solid and such a familiar formula, we do not insist that  $r$  and  $h$  be defined.