Math 113 Quiz # 3

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Using what you have learned answer the following questions. Show all work if you want partial credit.

(1) (5 points) Put the following numbers in the proper categories (remember that some numbers might belong to several categories).

$$\sqrt{2},\ -1,\ 0,\ 1,\ 5,\ \frac{1}{3}, \sqrt{4}, -\frac{14}{7}, 0.23, \frac{\sqrt{3}}{2}$$

Natural numbers	Whole numbers
$1,\ 5,\ \sqrt{4}$	$0,\ 1,\ 5,\ \sqrt{4}$
Rational numbers	**Irrational numbers**
$-1,\ 0,\ 1,\ 5,\ \frac{1}{3},\ \sqrt{4},\ \frac{-14}{7},\ 0.23$	$\sqrt{2},\ \frac{\sqrt{3}}{2}$
Integers	**Real numbers**
$-1,\ 0,\ 1,\ 5,\ \sqrt{4}, -\frac{14}{7}$	all

(2) (5 points) The UPC((Universal Product Code) bar codes on my package was unfortunately destroyed and one number was missing. Please help me figure out the value of this missing number.

Solution. From the bar code format, we know that the value of sixth digit number was missing. let the value of sixth digit number be x. Then according to the algorithm, we need to compute the following component:

(a) The sum of the odd digit number:

$$8 + 1 + 0 + 0 + 2 + 4 = 15$$

and the $3 \times$ (sum of the odd digit)

$$3 \times 15 = 45$$

(b) The sum of the even digit number:

$$1 + 2 + x + 1 + 3 + 4(\text{check digit}) = 11 + x$$

(c) modulo 10 part:

$$(45 + 11 + x) \mod 10 = 0$$

$$\Rightarrow x = 4$$

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(3) (Bonus 2 points) Please write down your favorite numbers.

Irrational number: π Real number: 17