The Number System

Identify the sets to which each of the following numbers belongs by marking an "X" in the appropriate boxes.

	Number	Natural Numbers	Whole Numbers	Integers	Rational Numbers	Irrational Numbers	Real Numbers
1.	$-\sqrt{17}$						
2.	-2						
3.	$-\frac{9}{37}$						
4.	0						
5.	-6.06						
6.	$4.5\overline{6}$						
7.	$3.050050005\ldots$						
8.	18						
9.	$\frac{-43}{0}$						
10.	π						
11.	$\overline{.634}$						
12.	$\sqrt{225}$						
13.	$.634$						
14.	$\sqrt{\frac{4}{49}}$						
15.	$-\sqrt{64}$						

	Number	Natural Numbers	Whole Numbers	Integers	Rational Numbers	Irrational Numbers	Real Numbers
16.	$\sqrt{13}$						
17.	-5						
18.	$\frac{2}{3}$						
19.	-0.083						
20.	27						
21.	$2.\overline{647}$						
22.	$3.0\overline{505}$						
23.	-198						

Property	Definition	Addition	Multiplication
Commutative		$a+b=b+a$ Ex: $2+3=3+2=5$	$a*b=b*a$ Ex: $2*3=3*2=6$
Associative	Changing the grouping of the numbers will not change the result.	$a+(b+c)=(a+b)+c$ Ex: $1+(2+3)=(1+2)+3=6$	$a*(b*c)=(a*b)*c$
Identity	**Zero** and **one** preserves identities under addition or multiplication respectively.	Ex: $2+0=0+2=2$	$1*a=a*1=a$ Ex: $1*2=2*1=2$
Inverse	For each real number a, there exist a unique number - a and 1/a for additive or multiplicative inverse.	$a+(-a)=0$ Ex: $2+(-2)=0$	Ex: $2*\frac{1}{2}=1$
Distributive	Multiplication distributes over addition. $a(b+c)=$	—	—