TYPES OF NUMBERS

You have already learned about the different types of numbers. Now try to put that knowledge into practice as you list examples, write several definitions and give reasons why a number does or does not fall into a certain category. Many numbers fall into many categories. Just because the number 6 is a triangular number, for example, doesn't mean that is the only type of number it is. It is also an integer, a whole number, an even number and a natural number!

1. Write the first **eight** of the following numbers, starting with the first one *(as shown):*

a) even numbers: **2** _____ _____ _____ _____ _____ _____ _____

b) square numbers: _____ _____ _____ _____ _____ _____ _____ _____

c) whole numbers: _____ _____ _____ _____ _____ _____ _____ _____

d) triangular numbers: _____ _____ _____ _____ _____ _____ _____ _____

e) prime numbers: _____ _____ _____ _____ _____ _____ _____ _____

f) odd numbers: _____ _____ _____ _____ _____ _____ _____ _____

g) cube numbers: _____ _____ _____ _____ _____ _____ _____ _____

h) multiples of 14: _____ _____ _____ _____ _____ _____ _____ _____

i) factors of 24: _____ _____ _____ _____ _____ _____ _____ _____

j) natural numbers: _____ _____ _____ _____ _____ _____ _____ _____

How many ***different*** ways can the number **50** be written as the **sum** of ***two*** **prime numbers**? *(Note: $x + y$ and $y + x$ do not count as different.)*

2. Why is **9 NOT** a prime number? _____

3. ***Real Numbers contain both rational and irrational numbers.*** Complete the statements and give two examples:

a) A rational number is _____

_____examples: _____ & _____

b) An irrational number is _____

_____examples: _____ & _____

c) A number that is **NOT REAL** is called _____ examples: _____ & _____

4. Circle **A** for **AGREE** or **D** for **DISAGREE** as your response to the following statements **giving your reason why**.

	STATEMENT	AGREE	DISAGREE	**REASON**
a)	51 is a prime number	A	D	
b)	-25 is a real number	A	D	
c)	0 is an even number	A	D	
d)	$\sqrt{9} = 3$	A	D	
e)	$\frac{2}{3}$ is a rational number	A	D	
f)	The sum of 2 consecutive square numbers is always odd	A	D	

PRIME FACTORIZATION

Any whole number can be written as a product of prime factors. Starting with the number 2 (which is the first prime), you check to see if it is divisible (it does not have a remainder when you divide by it). If not, try 3 (which is the next prime) to see if it is divisible or not. Continue with 5, 7, 11… until you have arrived at the number 1 at the bottom of the ladder.

1. Factorize the following into its primes.

a) 42 b) 36 c) 24 d) 80 e) 90

f) 50 g) 112 h) 96 i) 75 j) 128

2. Factorize the following into its primes.

a) 56 b) 68 c) 99 d) 45 e) 60

f) 150 g) 180 h) 132 i) 220 j) 255