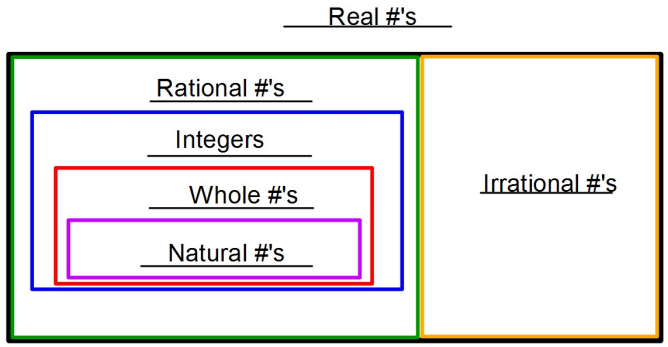
Factor.

$3m^2 - 192 = 3(m^2 - 64)$

$= 3(m \pm 8)$



To which set(s) of numbers does each number belong?

a) $1.77\overline{7}$ Rational (repeating decimal) and Real

b) $-\frac{6}{2}$ = -3 Integer, rational, real

c) $1.030030003\ldots$ Irrational, Real

this # has a pattern but it is not a repeating decimal.

d) $\sqrt{36}$ =6 Natural, Whole, Integer, Rational, Real

e) $\frac{17}{11}$ Rational, Real

To which one set of numbers would best decribe the kinds of numbers used in each situation?

1. Your shoe size. Since shoe sizes can have 1/2....Rational #'s

2. The number of TV's in a store.
   Since there can be zero TV's but not decimal amounts ... Whole #'s
3. The temperature given on the evening news. Since temperature could be negative and a newscaster probably wouldn't use decimals.....Integers
4. The number of students on a teachers 1st hour roster.
   Since a teacher wouldn't have a class with zero students.....Natural #'s
5. The circumference of a circle.
   Since circles involve π....Irrational #'s

Summary **Properties of Real Numbers**

Let a, b, and c represent real numbers.

Property	Addition	Multiplication
Closure	$a + b$ is a real number.	ab is a real number.
Commutative	$a + b = b + a$	$ab = ba$
Associative	$(a + b) + c = a + (b + c)$	$(ab)c = a(bc)$
Identity	$a + 0 = a, 0 + a = a$	$a \cdot 1 = a, 1 \cdot a = a$
Inverse	$a + (-a) = 0$	$a \cdot \frac{1}{a} = 1, a \neq 0$
Distributive	$a(b + c) = ab + ac$	

The Additive Inverse of a number is its OPPOSITE.

The opposite of a number is....

- The same distance from zero but on the other side of zero
- Same # but different sign
- The sum of opposites is always ZERO.

The Multiplicative Inverse of a number is it's RECIPROCAL.

The reciprocal of a number ....

- Is one over that number
- Has the same sign as that number
- The product of a number and its reciprocal is always ONE.

Find the opposite and reciprocal of each number

	Opposite	Reciprocal
$-0.13 = -\frac{13}{100}$	$+0.13$	$-\frac{100}{13}$
$5\frac{2}{3} = \frac{17}{3}$	$-5\frac{2}{3}$	$\frac{3}{17}$
$a - b$	$-(a-b)$ $= -a+b$	$\frac{1}{a-b}$

Are there any numbers that are reciprocals of themselves?

If yes, which ones?

The only numbers that are reciprocals of themselves are

1 and -1