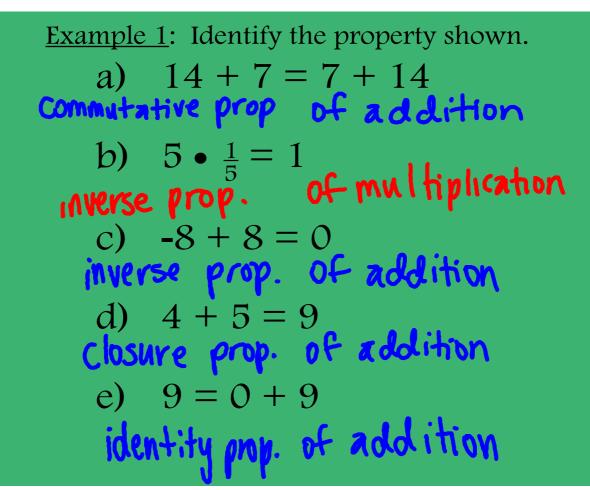
## 1.1 REAL NUMBERS & NUMBER OPERATIONS

| Whole Numbers      | 0, 1, 2, 3  |
|--------------------|---|
| Integers           | 3, -2, -1, 0, 1, 2, 3   |
| Rational Numbers   | <ul> <li>Numbers that can be written in the form of a fraction</li> <li>Decimals that are repeating or terminating</li> </ul> |
| Irrational Numbers | <ul> <li>Numbers that are not rational</li> <li>Decimals that neither repeat nor terminate</li> </ul>                         |

| <u>PROPERTIES</u> |                      |                           |
|-------------------|----------------------|---------------------------|
|                   | 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              | $a \cdot 1 = a$           |
| INVERSE           | a+(-a) = 0           | $a \cdot \frac{1}{a} = 1$ |
| DISTRIBUTIVE      | a(b+c) = ab + ac     |                           |



SUBTRACTION RULE: Add the opposite. Ex:  $5 - 12 \longrightarrow 5 + -12 = -7$ 

Example 2 a) What is the sum of 32 and -7? 32 + -7 = 25b) What is the difference of -5 and 8? -5 - 8 = -5 + -8 = -13c) What is the product of 9 and -4? 9 - 4 = -36d) What is the quotient of -5 and  $-\frac{1}{2}$ ?  $-5 = -\frac{1}{2} = -5 - -2 = 10$