

## 1-1 5-Minute Check

Find each value:

1.  $3^2 - 2(4 - 2)$

2.  $[(8 + 3) \times 3 - 12] \div 7$

3.  $\frac{5(12 + 6)}{10} - 2^3$

Evaluate if  $a=0.5$ ,  $b=6$  and  $c = -3$ 

4.  $ac - bc + a$

5.  $a(b + c) + ab^2$

5-min check

## 1-1 5-Minute Check

Find each value:

1.  $3^2 - 2(4 - 2) = 9 - 2(2) = 9 - 4 = 5$

2.  $[(8 + 3) \times 3 - 12] \div 7 = (33 - 12) \div 7 = 21 \div 7 = 3$

3.  $\frac{5(12 + 6)}{10} - 2^3 = \frac{5 \cdot 18}{10} - 8 = 9 - 8 = 1$

Evaluate if  $a=0.5$ ,  $b=6$  and  $c = -3$ 

4.  $ac - bc + a = -1.5 - (-18) + .5 = 17$

5.  $a(b + c) + ab^2 = 0.5(3) + 0.5 \cdot 36$   
 $= 1.5 + 18$

$= 19.5$

Solutions

## 1-2 Properties of Real Numbers

1-2

Real Numbers – all the numbers on the number line

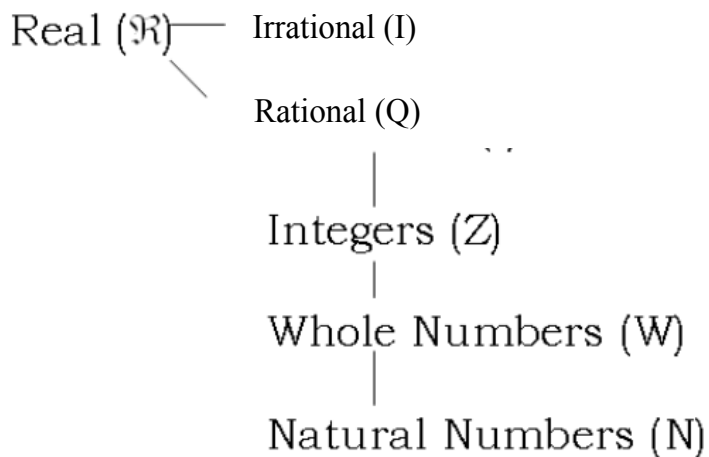
Real numbers are broken into two groups rational and irrational.

Real numbers

Irrational number- a number whose decimal never repeats and never ends  
(Examples:  $\pi$ ,  $\sqrt{3}$ ,  $e$ ...)

Rational numbers- any number that can be expressed in fractional form  $\frac{a}{b}$ .  
(These decimals either repeat or end.)

irrational



Integers {... -5, -4, -3, -2, -1, 0, 1, 2, 3...}

Whole numbers {0, 1, 2, 3, ...}

Natural Numbers (counting) {1, 2, 3, ...}

Number sets

### ⊕ Properties of Real Numbers:

Property	Addition	Multiplication
Commutative	$a+b=b+a$ $5+2=\underline{2}+\underline{5}$	$a \cdot b=b \cdot a$ $3 \cdot 6=6 \cdot 3$
Associative	$(a+b)+c=a+(b+c)$ $(2+3)+4=2+(3+4)$	$(a \cdot b) \cdot c=a \cdot (b \cdot c)$ $(3 \cdot 4) \cdot 2=3 \cdot (4 \cdot 2)$
Identity	$a+0=a$ $6.7 + 0 = 6.7$	$a \cdot 1=a$ $\frac{1}{2} \cdot 1 = \frac{1}{2}$
Inverse	$a + (-a) = 0$ $2.4 + (-2.4) = 0$	$a \cdot (1/a) = 1$ $8 \cdot \frac{1}{8} = 1$
Distributive	$a(b+c)=ab+ac$ $2(3+5)=2 \cdot 3+2 \cdot 5$	

Properties

Example 1:

Find the Additive & Multiplicative inverses of the following:

- a)  $3/8$       Add      Mult  
 $-\frac{3}{8}$        $\frac{8}{3}$
- b)  $-1.5 = -\frac{3}{2}$        $1.5$        $-\frac{2}{3}$
- c)  $-4 \frac{1}{2} = -\frac{9}{2}$        $4 \frac{1}{2}$        $-\frac{2}{9}$

Ex 1

Example 2: Simplify

a)  $-2x(3x - 2y + 3z)$

$$-6x^2 + 4xy - 6xz$$

b)  $6ab(5a - 2b)$

$$30a^2b - 12ab^2$$

ex 2

Example 3:

To which sets do the following numbers belong?

a) 46  $\mathbb{R} \mathbb{Q} \mathbb{Z} \mathbb{W} \mathbb{N}$

b)  $\pi$   $\mathbb{R} \mathbb{I}$

c) -2  $\mathbb{R} \mathbb{Q} \mathbb{Z}$

d)  $\frac{3}{7}$   $\mathbb{R} \mathbb{Q}$

ex 3

Assignment:

p. 17 20-56 evens p. 18 66, 67

Assignment