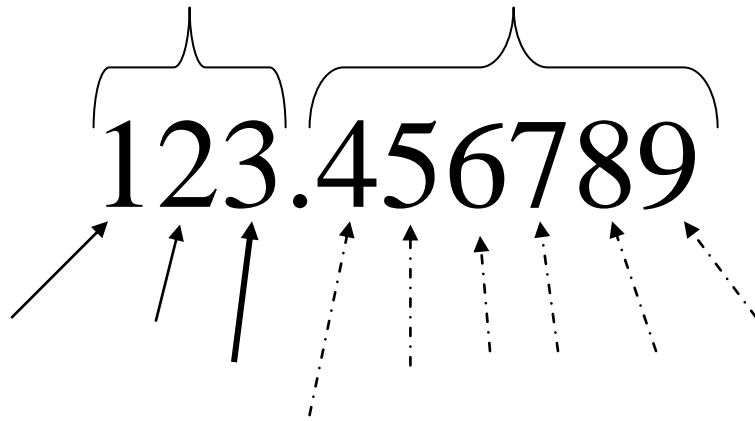


## Chapter 4



Give the place value of the 3

a) 12.351

b) 1.43

c) - 30.002

d) 0.123456

e) -0.56730987

What is the difference between "twenty one year olds" and "twenty-one year olds"?

What is the difference between "six ten thousandths" and "six ten-thousandths"?

---

### In Words

52.543201

-48.512

589,123.0546

2.09

-2.009

101.002003

Three hundred two and three thousandths

Negative Four thousand and three hundredths

One hundred million, thirty-three thousand, five hundred eleven

Thirty-two million, twenty thousand, five and three thousand, two hundred three ten-thousandths

Two hundred thousand and four hundred-thousandths

---

Decimal to Fraction:

$0.6 = \underline{\hspace{2cm}}$

$0.65 = \underline{\hspace{2cm}}$

$0.654 = \underline{\hspace{2cm}}$

$1.6 = \underline{\hspace{2cm}}$

$12.65 = \underline{\hspace{2cm}}$

$123.654 = \underline{\hspace{2cm}}$

$0.0006 = \underline{\hspace{2cm}}$

$1.0065 = \underline{\hspace{2cm}}$

$1000.004 = \underline{\hspace{2cm}}$

Write the following fractions as decimals:

$\frac{5}{10} =$

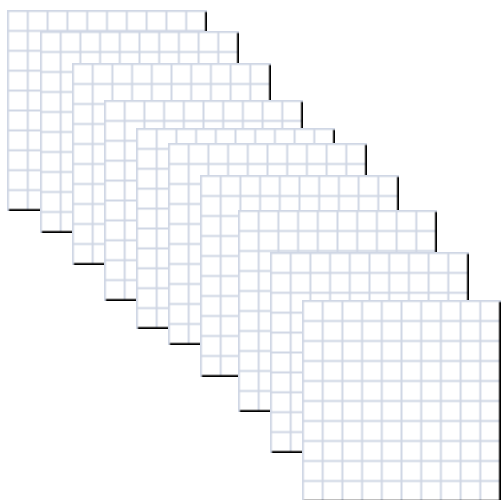
$\frac{2}{10} =$

$\frac{3}{100} =$

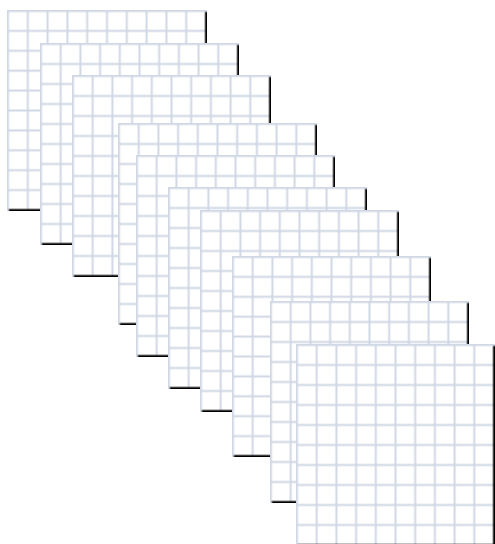
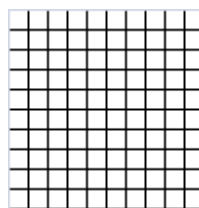
$\frac{923}{1000} =$

$\frac{21}{100} =$

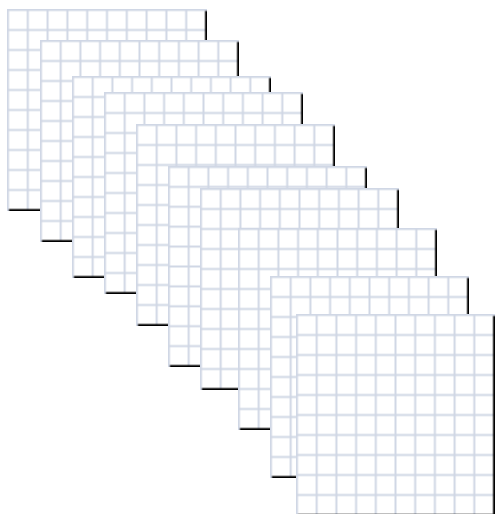
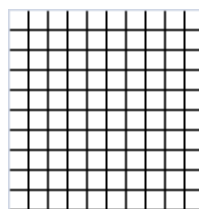
Decimal	Written	Mixed number
1.235		
	Five hundred twenty-three and forty-two <b>thousandths</b>	
25.003		
	forty-two <b>hundredths</b>	
	fifty-five <b>thousandths</b>	
501.02		
555.55		
		$23\frac{2}{100}$
11111.0001		
		$\frac{21}{1000}$
35.5301		
	four hundred ten <b>thousandths</b>	
	four hundred <b>ten-thousandths</b>	
2.2353		
		$5\frac{2}{100}$
1.568		
	one and four hundred nine <b>ten-thousandths</b>	



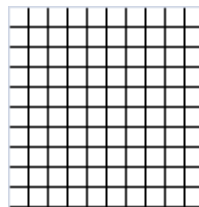
1.23



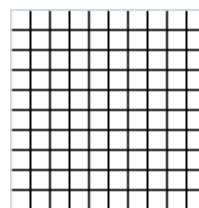
8.57



10.99



0.58



Rounding to the nearest?

Round to the nearest thousandth.

- 1) 234,123.5643                      2) 0.2345                      3) 1009.009                      4) 1.2353363333

Round to the nearest hundredth

- 1) 234,123.5643                      2) 0.2345                      3) 1009.009                      4) 1.2353363333

Round to the nearest whole number

- 1) 234,123.5643                      2) 0.2345                      3) 1009.009                      4) 1.2353363333

Round to the nearest cent

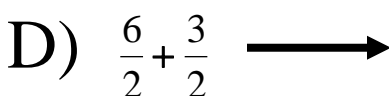
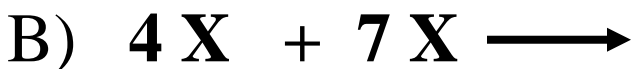
- 1) \$234,123.5643                      2) \$0.2345                      3) \$1009.009                      4) \$1.2353363333

### Adding Whole Numbers



The number in front tells you how many you have.  
So, one apple plus three apples is four apples.

Remember this---the + means you can only count or remove your like terms, that is all.



4.32-58.123+52 → Five different things. What are they?

-4.32-58.123 → Five different things. What are they?

## Multiplying

---

1. Multiply
2. Count the number of decimal places in both numbers.
3. Give the product that number of decimal places.

**2.04**

× **1.3**

---

The number of decimal places for the product is \_\_\_\_\_. Two from the first number and one from the second number.

1.  $1 \times 9 =$

2.  $12 \times 0.1 =$

3.  $0.1 \times 0.11 =$

4.  $9 \times 6 =$

5.  $8 \times 0.6 =$

6.  $12 \times 0.07 =$

7.  $12 \times 0.2 =$

8.  $2 \times 0.12 =$

9.  $0.01 \times 0.01 =$

10.  $0.04 \times 8 =$

1.  $-51.4 \times 83 =$

2.  $-20 \times -0.78 =$

3.  $0.069 \times -0.1 =$

4.  $0.0843 \times 0.081 =$

5.  $-572 \times -0.0072 =$

6.  $-0.676 \times 3.1 =$

7.  $0.84 \times 0.063 =$

8.  $70.7 \times 0.7 =$

9.  $9.72 \times 0.038 =$

10.  $0.0407 \times 0.05 =$

1. 9 2. 1.2 3. 0.011 4. 54 5. 4.8

6. 0.84 7. 2.4 8. 0.24 9. 0.0001

10. 0.32

1. -4266.2 2. 15.6 3. -0.0069 4. 0.0068283

5. 4.1184 6. -2.0956 7. 0.05292 8. 49.49

9. 0.36936 10. 0.002035

Evaluate: 1)  $2(R - T)$ , FOR  $R = -0.32$  AND  $T = -0.022$

2)  $XY^2 - X$ , FOR  $X = 0.1$  AND  $Y = -0.2$

# Dividing

1. If dividing by a decimal, then move the decimal place to the right in both numbers until there are no decimal places on the outside number (the divisor).
2. Place a decimal on the line above the other decimal.
3. Divide as before until you have a remainder of zero, repeating digits, or it asks you to round. If the digits repeat, then place a bar over the repeating digits.

$$1.3 \overline{)3.328}$$

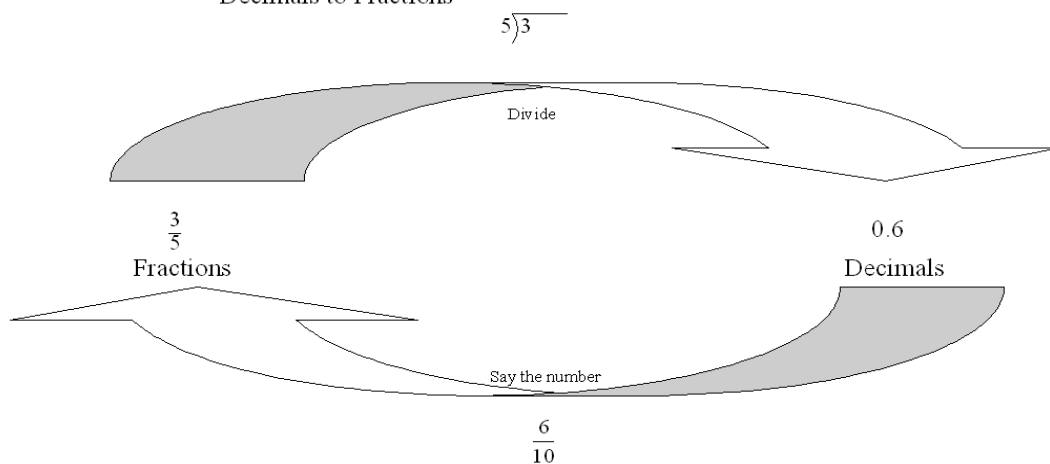
$$13 \overline{)33.28}$$

The outside number had one decimal place. So we had to move the decimal to the right one place in both numbers.

Divide  $3 \overline{)25}$

Round to the nearest hundredth  $13 \overline{)200}$

Converting Fractions to Decimals  
Decimals to Fractions



$$1.325$$

↑     ↓

$$1 \frac{13}{40}$$

↑     ↓

## Power of 10

$2.33 \cdot 10$

$2.33 \cdot 100$

$2.33 \cdot 10,000$

$2.33 \div 10$

$2.33 \div 100$

$2.33 \div 100,000$

Converting fractions to decimals:

$\frac{9}{10}$

$\frac{3}{5}$

$\frac{2}{3}$

$\frac{7}{8}$

$\frac{2}{11}$

Converting decimals to fractions (review):

$0.6 = \underline{\hspace{2cm}}$

$0.65 = \underline{\hspace{2cm}}$

$0.654 = \underline{\hspace{2cm}}$

$1.6 = \underline{\hspace{2cm}}$

$12.65 = \underline{\hspace{2cm}}$

$123.654 = \underline{\hspace{2cm}}$

$0.0006 = \underline{\hspace{2cm}}$

$1.0065 = \underline{\hspace{2cm}}$

$1000.004 = \underline{\hspace{2cm}}$



$$0.3x = 0.18$$

# Simplify

(simplify each side)

**c) Remove decimals -----*Multiply by powers of ten***

---

1)  $0.4x = -5.73$

2)  $x + 3.2 = 2.3$

3)  $\frac{-t}{8.1} = -3$

---

$x + 8.1 = 9.8$

$\frac{y}{2.22} = -6$

$-1.65 = -0.5f$

## Applications:

The average acceleration of an object is given by  $a = \frac{v}{t}$ , where  $a$  is the average acceleration,  $v$  is the velocity, and  $t$  is the time. Find the velocity after 3 seconds of an object whose acceleration is 16 ft/sec squared.

$$D = rt \quad C = \frac{5}{9}(F - 32) \quad \text{profit} = \text{revenue} - \text{cost} \quad \text{Retail price} = \text{cost} + \text{markup}$$

- 1) Find the distance covered by a jet if it travels for 3.5 hours at 550 mph.
- 2) Find the Celsius temperature reading if the Fahrenheit reading is  $89.3^\circ$  ?
- 3) For the month of June, a florist's cost of doing business was \$3758.95. If June's revenues totaled \$5,115.22, what was her profit for the month of June?
- 4) You find a shoe for \$1.33 at a yard sale and want to sell it with a markup of \$2.55. What is the Retail or selling price?
- 5) The markup on a refrigerator is \$523.44. If the selling price is \$1045.66, then what is the dealers cost?

SQUARE TO SQUARE ROOT

$2 \bullet 2 =$

$\sqrt{4} = 2$

$3 \bullet 3 =$

$\sqrt{9} = 3$

$4 \bullet 4 =$

$\sqrt{16} = 4$

$5 \bullet 5 =$

$\sqrt{25} =$

$6 \bullet 6 =$

$\sqrt{36} =$

$7 \bullet 7 =$

$\sqrt{49} =$

$8 \bullet 8 =$

$\sqrt{64} =$

$9 \bullet 9 =$

$\sqrt{81} =$

$10 \bullet 10 =$

$\sqrt{100} =$

$11 \bullet 11 =$

$\sqrt{121} =$

$12 \bullet 12 =$

$\sqrt{\quad} =$

$-\sqrt{64}$

$-\sqrt{0.64}$

$\sqrt{\frac{64}{25}}$

$-\sqrt{\frac{1}{4}}$

$-6\sqrt{81} + 5\sqrt{1}$

$\sqrt{\frac{25}{9}} - \sqrt{\frac{64}{81}}$

Approximate using your calculator:

$\sqrt{11}$

$\sqrt{52}$

## Radical Land

$$\sqrt{32}$$

$$\sqrt{108}$$

$$\sqrt{50}$$

$$\sqrt{250}$$

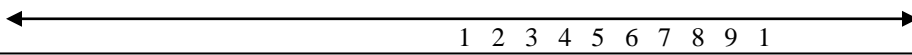
$$\sqrt{81}$$

$$5\sqrt{99}$$

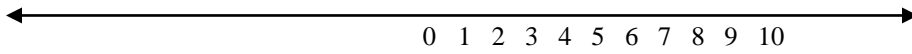
$$\sqrt{625}$$

$$\sqrt{42}$$

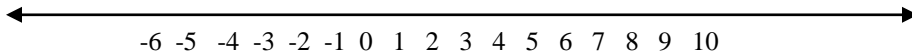
**NATURAL NUMBERS** (counting numbers) 1, 2, 3, 4, 5,...



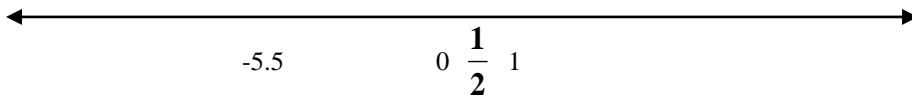
**WHOLE NUMBERS** 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, ...



**INTEGERS** ...-3, -2, -1, 0, 1, 2, 3, ...



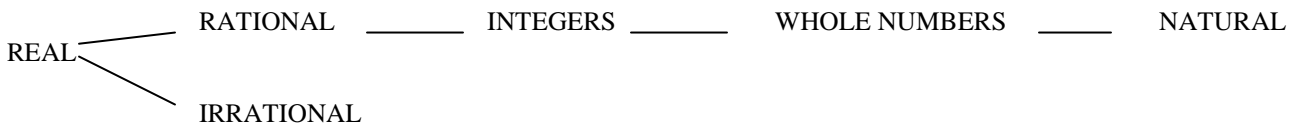
**RATIONAL NUMBERS** Integers, Repeating and ending Decimals, and Fractions -3, -2  $\frac{7}{8}$ , 0, 3, 5.7, 4.33333...



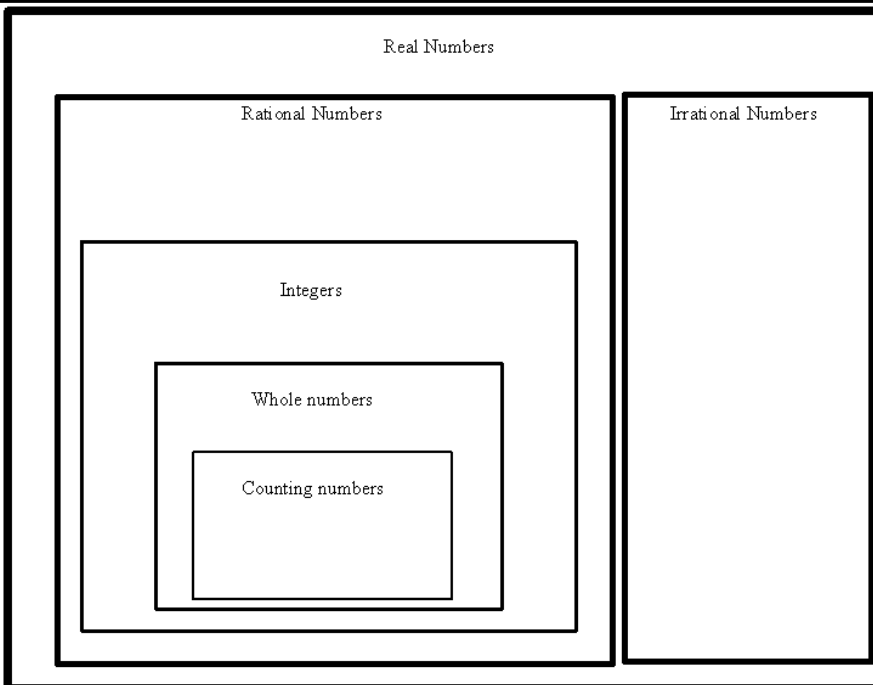
**IRRATIONAL NUMBERS**

Decimals that don't repeat or end. We don't know exactly where they are on the number line. Like **radicals**,  $\pi$ , 1.235698425624... there is no pattern.

**REAL NUMBERS** All of the previous numbers



So all natural numbers are whole numbers, all whole numbers are integers, all integers are rational, and all rational are real. The real numbers are all the numbers on the real number line.



$\{2, 3, -1, 0.5, 234.\overline{12}, 0, \sqrt{3}, \pi\}$

List all of the numbers that are:

- 1) whole numbers
- 2) Integers
- 3) Irrational
- 4) Rational
- 5) Real

**Plot the following:**

**Whole numbers: plot -2**

**Plot 5**



**Decimals: plot -2.3**

**Plot 5.6**

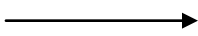


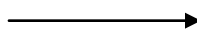
**Fractions: plot  $4\frac{1}{2}$**

**Plot  $-3\frac{1}{4}$**



**Linear Inequalities**

$<, >$  

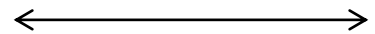
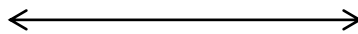
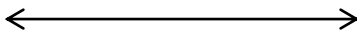
$\leq, \geq$  

$x \leq 4$

$x > -5$

$x < 0$

Graph



Interval notation

1)  
 $x > 2$



Interval notation

2)  
 $x \geq 6$



Interval notation