

Incoming 6th Grade Reference Sheet

Place Value Chart

Hundred Billions	Ten Billions	Billions	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths				
2	1	0	,	9	8	7	,	6	5	4	,	3	2	1	.	2	3	4	5	6



This Chart shows the place value of the number 210,987,654,321.23456
 This is how you say it.
 Two hundred ten billion, nine hundred eighty seven million, six hundred fifty four thousand, three hundred twenty one, and twenty three thousand four hundred fifty six hundred thousandths.

Rounding Rules

Find the place you want to round to. Look to the number directly to the right of that number.

- If the number to the right is 0-4, keep the number the same
- If the number to the right is 5-9, the number in the place goes up 1

Adding & Subtracting Decimals

- 1) Line up the numbers so their places are lined up AND the decimals are lined up.
- 2) Start by adding the ones column and move left. Carry over or borrow if needed.
- 3) Bring the decimal straight down into the answer

$$\begin{array}{r}
 ^1 \\
 36.5 \\
 + 2.7 \\
 \hline
 39.2
 \end{array}$$

$$\begin{array}{r}
 ^5 ^1 \\
 3.65 \\
 - .27 \\
 \hline
 3.38
 \end{array}$$

Multiplying Decimals

1. Line up numbers.
2. Multiply
3. Count the number of decimal points.
4. Place the decimal in the answer.

$$\begin{array}{r}
 ^4 \\
 0.46 \\
 \times ^1 7 \\
 \hline
 3.22
 \end{array}
 \qquad
 \begin{array}{r}
 ^{\frac{1}{4}} \\
 4.6 \\
 \times ^1 3.7 \\
 \hline
 13.22 \\
 + 1380 \\
 \hline
 17.02
 \end{array}$$

KEY WORDS

Addition

sum
 altogether
 more than
 increased by

Subtraction

difference
 how much more
 how much left
 decreased by

Multiplication

product
 twice
 double

Division

quotient
 split evenly
 shared equally
 half

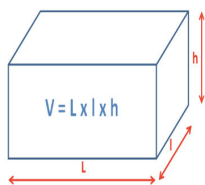
Geometry

Measurement

Perimeter is the distance around a figure (add up all the sides)

Area is how much space a figure takes up (how many squares inside) – multiply the length by the width

Volume is the amount of space a figure takes up – multiply the length by the width by the height



Conversions

1 foot = 12 inches

1 yard = 3 feet

1 meter = 100 centimeters

1 hour = 60 minutes

Coordinate Graphing

Ordered Pairs (x, y)

x – coordinate tells how far horizontally



y – coordinate tells how far vertically



Order of Operations

1. Do any work in grouping symbols first.
2. Work multiplication and division, whatever happens first left to right
3. Work addition and subtraction, whatever happens first left to right

$$6 + (4 \times 3)$$

$$6 + 12$$

$$18$$

FRACTIONS

Adding/Subtracting with unlike denominators

- Find equivalent fractions with common denominators
- Add/subtract numerators
- Leave denominators the same
- Add/Subtract whole numbers, if needed
- Simplify if possible

$$\frac{5}{8} + \frac{1}{4} = \frac{5}{8} + \frac{2}{8} = \frac{7}{8}$$

Multiplying Fractions

- Change mixed numbers to improper fractions, if needed
- Multiply numerators
- Multiply denominators
- Simplify if possible

$$\frac{3}{5} \times \frac{2}{4} = \frac{6}{20} = \frac{3}{10}$$

Dividing Whole Numbers by Fractions

- Think about how many of that fraction are in one whole
- Multiply that by how many wholes you have

$$7 \div \frac{1}{3}$$

Think: "There are 3 thirds in one whole."

Think: "I have seven wholes, so... $3 \times 7 = 21$."

$$\text{Answer: } 7 \div \frac{1}{3} = 21$$

Changing mixed numbers to improper and the reverse

Converting Improper Fractions to Mixed Numbers

$$\frac{7}{3} = 2\frac{1}{3}$$

Step 1: Set-up a division problem and divide 7 by 3

$$\begin{array}{r} 3 \overline{) 7} \\ \underline{-6} \\ 1 \end{array}$$

Step 2: the result is 2 with a remainder of 1 which we write as $2\frac{1}{3}$

$$3 + \frac{1}{5} \times 5 = \frac{16}{5}$$

Equivalent Fractions

Multiply or divide the numerator AND denominator by the same number

$$\frac{7}{10} \times \frac{10}{10} = \frac{70}{100}$$