Text (2) Introduction (Buoyancy F) ST 1 - 2015/2016

A ship or a boat (we'll call them all boats) is a vehicle that can float and move on the ocean, a river, or some other watery place, either through its own power using power from the element (wind, waves, or sun).

Most boats move partly through and partly above water but some (notably hovercraft and Hydrofils) lift up and speed over it while others (submarines nd submersibles, which are small submarines) go entirely under it.

All boats can float, but floating is more complesc and confusing than it sounds and it's best discussed through a scientific concept called Buoyancy, hich is the force that causes floating [Any object will either float or sink in ater depending on its density (How much a certain volume of it weighs) ? it's more dense than water, it will usually sink; If it's less dense, it will oat. It doesn't matter How big or small the object is: a gold ring will ink in water, while a piece of plastic as big as a football field will float.] + ↓

e Basic rule is that an object will sink if it weighs more than exactly e same volume of water. But that doesn't really explain why an aircraft arrier (made from dense metal) can float [it is the longest ship in the world despite the Huge size of this ship, we notice How its bow (front) is quietly sharply pointed so it pushes the water aside, creating less resistence and allowing he ship to move faster and more efficiently] ← Example of the ship.

↓

ARchimed's principle

ARCHIMEDS Principle

→ When something is Resting in or on water, it feels an upwards (Buoyant) force equal to the weight of water that it pushes aside (or displaces).

This is ... partially ...

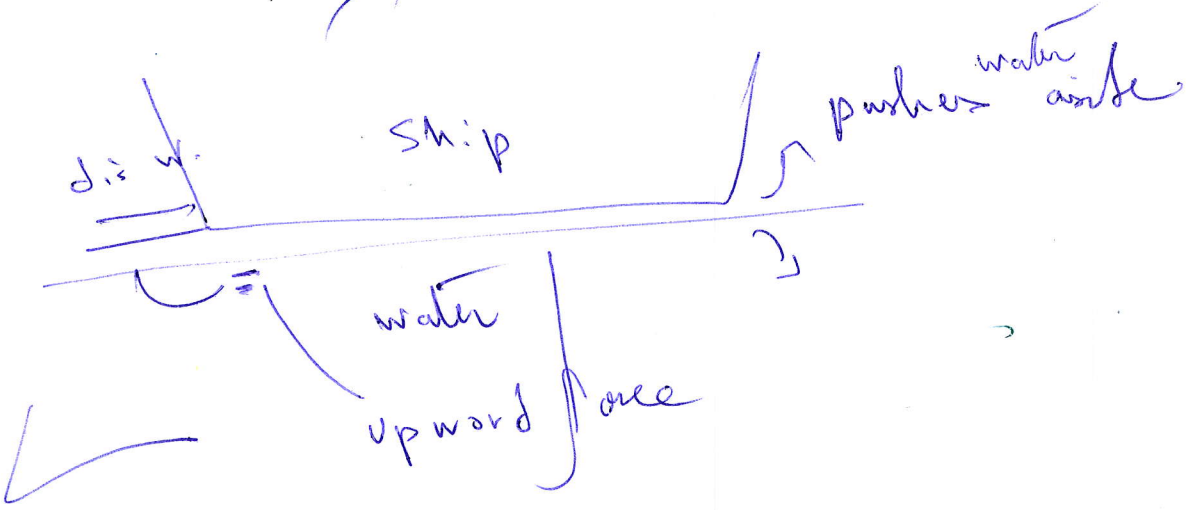
→ If an object is completely submerged, this Buoyant force pushing upwards effectively it reduced its weight; it seems to weigh less when it's underwater than it does if it were on dryland.

... Fully ...

↓

it all about upward force equals weight of displaced water

Example of the ship



Active	Passive
Present simple She does the homework	**Am/is/are** The homework is done (by her)
Past simple He did the homework	**Was/were+past participle** The homework was done (by him)
Present continuous She is doing the homework	**Am/is/are +being+ past participle** The homework is being done (by her)
Past continuous He was doing the homework	**Was/were+being+past participle** The homework was being done (by him)
Present perfect She has done the homework	**Have/has+been+past participle** The homework has been done(by her)
Past perfect He had done the homework	**Had+been+past participle** The homework had been done (by him)
Future(will) She will do the homework	**Will+be+past participle** The homework will be done (by her)
Future(going to) He is going to do the homework	**Am/is/are going to+be+past participle** The homework is going to be done (by him)
Infinitive She wants to do the homework	**To be+past participle** She wants the homework to be done
Modal Ha can do the homework	**Modal+be+past participle** The homework can be done (by him)
Gerund They are building the house	**Being+past participle** The house is being built

LECTURE04:Affixes

Prefixes and suffixes are grammatical "affixes"(prefixes come before the root word and suffixes come after)

In very simplistic terms, prefixes change the meaning of words, and suffixes change their form (including plural, tense, comparative, and parts of speech).

Some of the most common prefixes are:

Un, re, dis, inter....*like for example* ***un****happy,* ***re****turn,* ***dis****agree,* ***inter****national.*

Some of the most common suffixes are:

Able, ship, ly, hood, tion....*like for example*comfort***able,*** champion***ship,*** kind***ly,*** child***hood,*** starva***tion.***

Exercise: Use the words between brackets in the appropriate form (use prefixes or suffixes)

1. He was acting in a very (child)…**childish**…way
2. The team that he supported was able to win the (champion) **championship**
3. I think you should (consider) …**reconsider** ..your decision again.
4. She looked (happy)…**unhappy**….she started to cry.

Handout 7: Common Affixes and Their Meanings

Prefixes

Prefixes are letter groups added before a base word or root. Prefixes generally add to or change the meaning of a word.

Prefix	Meaning	Example
Ab-	away from	absent, abnormal
Ad-	to, toward	advance, addition
After-	later, behind	aftermath, afterward
Anti-	against, opposed	antibiotic, antigravity
Auto-	self	automobile, autobiography
Be-	make	believe, belittle
Bi-	two	bicycle, biceps
Com, con, co-	with, together	commune, concrete
Contra-	against	contradict, contrary
De-	downward, undo	deflate, defect
Deci-	ten	decibels, decimal
Dis-	not	dislike, distrust
E, ex-	out of, prior to	explain, expense
En, em-	in, into, cover	engage, employ
Extra-	outside	extravagant, extraterrestrial
Im-	not	impose, imply
In-	into, not	include, incurable
Inter-	among	interact, internal
Macro-	large	macroeconomics, macrotiotic
Magni-	great	magnify, magnificent
Mega-	huge	megaphone, megabucks
Micro-	small	miscroscope, microbe
Mis-	wrongly	mistake, mislead
Non-	not	nonsense, nonviolent
Over-	above, beyond	overflow, overdue
Post-	after	postdate, postmark
Pre-	before, prior to	preheat, prehistoric
Pro-	in favor of	protest, protect
Re-	again	repeat, revise
Sub-	under, beneath	submarine, subject
Super-	above, beyond	superior, supernatural
Tele-	far	telescope, telephone

HANDOUTS

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Handout 7 (continued)
Common Affixes and Their Meanings

Prefix	Meaning	Example
Trans-	across	transfer, transit
Tri-	three	tricycle, triangle
Un-	not	unknown, unjust
Ultra-	beyond	ultraviolet, ultrasuede
Under-	beneath, below	underneath, underline
Uni-	one, single	unicorn, uniform

Suffixes

Suffixes are groups of letters added after a base word or root. The following is a sample of the wide variety.

Suffix	Meaning	Example
-ant	one who	assistant
-ar	one who	liar
-arium	place for	aquarium
-ble	inclined to	gullible
-ent	one who	resident
-er	one who	teacher
-er	more	brighter
-ery, ry	products	pottery
-ess	one who (female)	actress
-est	most	most*****
-ful	full of	mouthful
-ing	material	roofing
-ing	(present tense)	smiling
-less	without	motherless
-ling	small	fledgling
-ly	every	weekly
-ly	(adverb)	happily
-ness	state of being	happiness
-ology	study of	biology
-or	one who	doctor
-ous	full of	wondrous
-s, es	more than one	boxes
-y	state of	sunny

Pinnell, G.S., Fountas, I.C. (1998). *Word matters: Teaching phonics and spelling in the reading/writing classroom.* Plymouth, NH: Heinemann.

HANDOUTS

Every Child Reads K-12 EXCELLENCE IN TEACHING AND LEARNING

First year "ST" → Bensouici

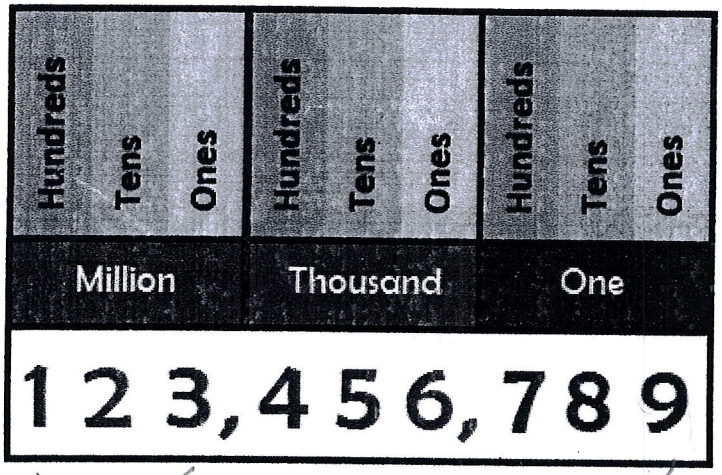
Lesson one: Numbers, Fractions, and Decimals

1. Numbers

1.1 How to write and read big numbers in English?

a-Writing big numbers

Counting from the right, every three places in a number make up a ***period.*** This chart shows the ***ONES period.*** *The* ***Thousand period,*** and the ***Millions period.***



When you write a number, insert a Comma between each period

b- Reading big numbers

When you read a number that has more than three digits, start with the period on the left. Say the numbers in the period as a unit, followed by the name of the period. Do the same with the next period.

So what is the number?

- It is: One hundred twenty- three million, four hundred fifty-six thousand, and seven hundred eighty nine.

- Zero in (Mathematics

-0, 35…..*Zero* ***point*** *three five*

-0,025…..*Zero point* ***oh*** *two five*

-0, 075…..*Zero point double* ***oh*** *seven five*

- ***Football***

0/3……Zero / Three or Nothing /Tree

- ***Tennis***

0/5…..love / Five

1.2/ a- Cardinal Vs Ordinal numbers

- There are 12 birds in the cage

- He is six years old today

He finished first in the race

Happy 50th birthday

Ordinal *numbers are those that refer to the order of things, such as:* ***first, second, third, and so on. Whereas, Cardinal*** *numbers are those that are used for counting:* ***one, two, three, and so on.***

Cardinal, Ordinal, Roman Numerals

Cardinal Numbers				Ordinal Numbers				Roman Numerals			
1	One	16	Sixteen	1st	First	16th	Sixteenth	1	I	16	XVI
2	Two	17	Seventeen	2nd	Second	17th	Seventeenth	2	II	17	XVII
3	Three	18	Eighteen	3rd	Third	18th	Eighteenth	3	III	18	XVIII
4	Four	19	Nineteen	4th	Fourth	19th	Nineteenth	4	IV	19	XIX
5	Five	20	Twenty	5th	Fifth	20th	Twentieth	5	V	20	XX
6	Six	30	Thirty	6th	Sixth	30th	Thirtieth	6	VI	30	XXX
7	Seven	40	Forty	7th	Seventh	40th	Fortieth	7	VII	40	XL
8	Eight	50	Fifty	8th	Eighth	50th	Fiftieth	8	VIII	50	L
9	Nine	60	Sixty	9th	Ninth	60th	Sixtieth	9	IX	60	LX
10	Ten	70	Seventy	10th	Tenth	70th	Seventieth	10	X	70	LXX
11	Eleven	80	Eighty	11th	Eleventh	80th	Eightieth	11	XI	80	LXXX
12	Twelve	90	Ninety	12th	Twelfth	90th	Ninetieth	12	XII	90	XC
13	Thirteen	100	One hundred	13th	Thirteenth	100th	One hundredth	13	XIII	100	C
14	Fourteen	500	Five hundred	14th	Fourteenth	500th	Five hundredth	14	XIV	500	D
15	Fifteen	1.000	One thousand	15th	Fifteenth	1.000th	One thousandth	15	XV	1.000	M

Note: Titles of Kings are written in Roman figures:

James III Elizabeth III

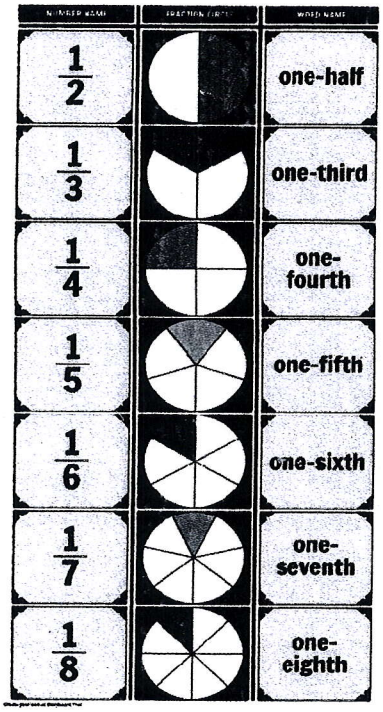
***But in spoken English we use the ordinal numbers preceded by* The:**

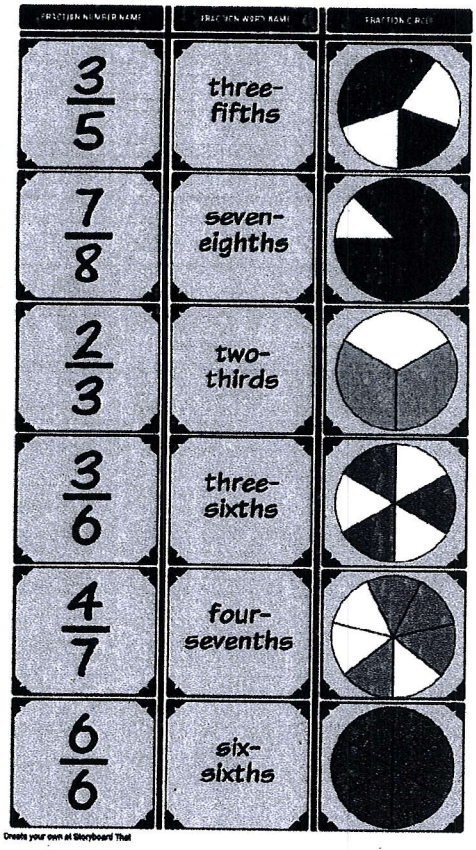
James the third Elizabeth the third

2. Fractions

Fractions are made of two numbers. A top number and a bottom number. The bottom number is ***the denominator.*** It tells how many equal parts are in the whole. The top number is the numerator. It tells how many parts you are talking about. When you read a fraction, read the top number first. Then read the bottom number using words like: ***half, thirds, fourths, or fifths.***

I read the following fractions





- **Sums**

+ (Plus) - (Minus) / (Divided by) x (Multiply by)

= (Equals) , (Point) %(Percentage)

Algebra symbols

Symbol	Symbol Name	Meaning/Definition
X	X variable	Unknown value to find
$\triangleq$	Equal by definition	Equal by definition
:=	equal by definition	equal by definition
$\approx$	approximately equal	approximation
$\equiv$	equivalence	identical to
$\propto$	Proportional to	Proportional to
∞	Lemniscates	Infinity symbol
[]	brackets	Calculate expression
{}	braces	Set
(a,b)	open interval	
[a,b]	closed interval	
f(x)	function of x	Maps values of x to f(x)
Δ	delta	Change or diffrence
Σ	Sigma	Summation
$\Sigma\Sigma$	Sigma	Double summation
e	e constant / Euler's number	e=
γ	iconstant /Euler Mascheron	
φ	Golden Ratio	Golden Ratio

Symbol	Symbol Name	Meaning/ Definition
$A \cap B$	Intersection	-Objects that belong to set A and set B
$A \cup B$	Union	-Objects that belong to set A or set B
$A \subseteq B$	Subset	-A is a subset of B. set A is included in set B
$A \subset B$	Proper subset / strict Subset	-A is a subset of B. but A is not equal to B
$A \not\subset B$	Not subset	-Left set is not a subset of right set
$A \supset B$	Proper superset/ strict superset	-A is a super set of B. but B is not equal to A
2^A	Power set	-All subsets of A
P(A)	Power set	-All subset of A
$a \in A$	Element of, belongs to	-Set membership
$x \notin A$	Not element of	Not set membership
$\emptyset$	Empty set	
$\forall$	For all	
$\Rightarrow$	Implies	
$\exists$	there existes	
U	Universal Set	
$\mathbb{N}_0$	Natural numbers set	

Math in English

Exercice number one :

✓ ***Write the following numbers into letters:***

-1, 356, 071 ……

……

-0, 025……

-3, 075……

-1, 0038……

-18, 0315……

-2015……

Exercice number two: *Convert the following calculations to correct expressions:*

- [(11+0, 6) (13-7)] + [(2+9) (1X0)]

……

……

$-[(\frac{11}{6}+\frac{10}{2})\ (\frac{17}{5}-\frac{13}{9})]+\frac{7}{2}$

……

……
……

Exercice number three: Convert the following letters into numbers:

-Add eight to nineteen, multiplied by seven substracted two.

……..

-Divided two by one add six and twelve substracted eleven.

……

-Seven to the power two.

……