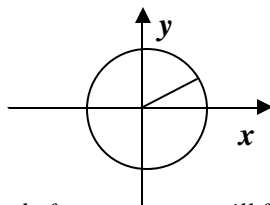


# Day 1. Introduction

## 1. Class Goal: Trigonometry

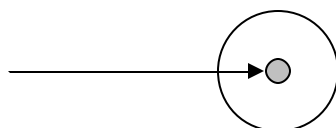


**REMEMBER: Everything is on this picture**

- Real line  $\Rightarrow$  Cartesian coordinate system
- Circle  $\Rightarrow$  Polar coordinate system
- Cosine, Sine  $\Rightarrow$  Trigonometry

- At the end of semester, you will fully understand Trigonometry using only this picture

## 2. Student's Goal: Shooting into the center

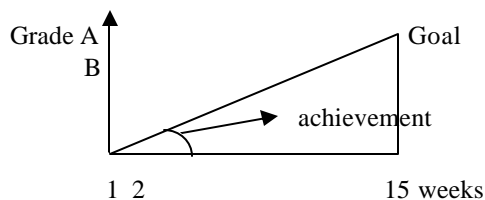


**REMEMBER: Better Goal, Better Result**

- Concentrate  $\Rightarrow$  Core, Center, Origin, Entity
- Plan  $\Rightarrow$  Daily, Weekly, Monthly, Yearly
- Remember  $\Rightarrow$  Summarize, Picture in Mind

- At the end of semester, you will like Mathematics

## 3. How To Get It: Study, Study, and Study

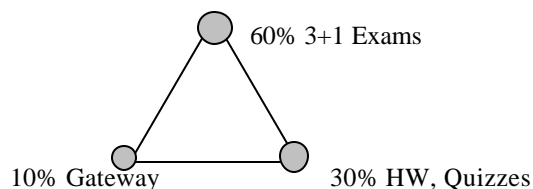


**REMEMBER: Time is Everything**

- Understand  $\Rightarrow$  Think, Read, write
- Study  $\Rightarrow$  Continuously, every day
- Question  $\Rightarrow$  ask me any time, feel free

- Your good grade only depends on the angle (your achievement and effort)

## 4. Exams and HW: Do It Now

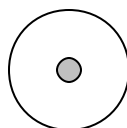


**REMEMBER: Better grade, Good Math**

- Exam 1  $\Rightarrow$  September 30
- Exam 2  $\Rightarrow$  October 28
- Exam 3  $\Rightarrow$  December 2
- Final  $\Rightarrow$  December 14

- We have only 15 weeks, 42 classes and 3 months to study and learn

## 5. Instructor's Goal: Being at the center of students



**REMEMBER: Better teaching, Better Result**

- Teaching  $\Rightarrow$  Core, Center, Origin, Entity
- Helping  $\Rightarrow$  Cooperation, being a friend
- Summarize  $\Rightarrow$  Give Math Picture in Mind

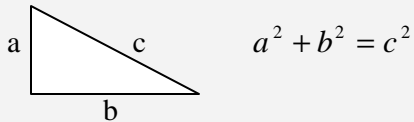
- I expect that my students will get better grade, better Math knowledge

## Day 2. Methods of Studying: ABCDE and 3-P

### 1. Methods of Studying: ABCDE and 3-P (Three Big P)

A. *Seeing once is better than hearing 100 times.* (ancient proverb)  
 $1 > 100$

B. Quadrate, Quadrate, and Quadrate  
(ancient Greek philosopher, mathematician [Pythagoras of Samos](#), - 475 B.C)



C. *The important thing is not to stop questioning.*  
(world famous scientist [Albert Einstein](#), 1879-1955)

D. *The understanding of the problem is the halfway (50%) of solving the problem.*  
(world famous scientist, mathematician [Lev Pontryagin](#), 1908-1988)



E. *How to Solve It.* Book by  
(world famous educator, mathematician [George Polya](#), 1887-1985)



1. **Read** the problem.
2. **Read** the problem again.
3. Draw a **picture** or diagram.
4. Find and label the **unknowns** (variables)  $x, y, z, \dots$  - what you are looking for.
5. Find and label the **known** quantities (constants, numbers)  $1, 2, 3, a, b, c, \dots$
6. Write down all the **formulas** and relations between the unknown and known
7. **Solve** the problem.
8. **Check** the answer.



### 1. Everything is in your Mind, Hand, Palm and 5 fingers: 12345 and ABCDE

1. Pythagoras + Pontryagin + Polya=3-P
2. Doing once is better than thinking 100 times
3. Concentrate, concentrate and concentrate on the core, center and origin
4. Read, read and read, until you have idea
5. Before solving the problem, think about it and understand your goal

- A. If you remember well about **3-P and Three Big P**, you are almost on the halfway
- B. If you concentrate well about **12345, ABCDE** method, you are almost on the halfway
- C. If you understand well about **Pythagoras theorem**, you are almost on the halfway
- D. If you think well about **Pontryagin's idea**, you are almost on the halfway
- E. If you learn well about **Polya's method**, you are almost on the halfway

			
	Nature	Inverse	
●	white	black	●
●	soft	hard	●
●	Moon	Sun	●
●	female	male	●
●	mind	body	●
●	mother	father	●
●	begin	end	●
●	inside	outside	●
●	open	closed	●

			
●	Mathematics	Language	●
1	Number	Letter	A
●	Quality	Figure	●
●	Function	Graph	●
●	Algebra	Geometry	●
●	Calculus	Trigonometry	●
0	zero	One	1
●	Real	Imaginary	●
$R$	Real number	Complex number	$C$

$Q$	Rational	Irrational	$I$
			
●	parallel	perpendicular	●
●	Real line	Cartesian plane	●
●	Circle	Quadrat	●
●	Polar coordinate	Cartesian coord	●
●	$p$	$e$	●
●	radian	degree measure	●
●	sine	cosine	●
+	plus	minus	-
$\times$	multiplication	division	$\div$
$a^x$	exponent	logarithm	$\log_a x$
$\int$	integral	differential	$\frac{d}{dx}$
$x^2$	square	root square	$\sqrt{x}$
●	Algebra	Geometry	●
●	Calculus	Trigonometry	●
●	Function	Graph	●
$x$	variable	constant	$c$
$f$	function	inverse	$f^{-1}$
●	input	output	●
●	domain	range	●
●	continuous	discontinuous	●
●	increasing	decreasing	●
●	max	min	●
●	linear	nonlinear	●

<	less	bigger	>
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