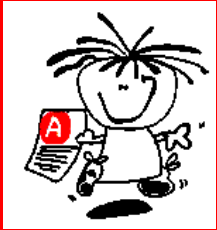




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Gr 12 Maths BOOKWORK

(an extract from Gr 12 Maths 2 in 1)



All the proofs you need to know!

Paper 1: Series **page 1**
(a maximum of 6 marks)

Paper 2: Geometry (6 theorems) and **page 1 to 3**
Trigonometry (3 proofs)
(a maximum of 12 marks)



Be sure to study the geometry and trigonometry summaries on
page 4 to 6.

Calculator instructions

page 7

BOOKWORK: PROOFS

PAPER 1

Arithmetic and Geometric Series

S_n , the sum of n terms

▶ Arithmetic Series:

$$\begin{aligned} S_n &= a + (a+d) + (a+2d) + \dots + T_n && \dots n \text{ terms} \\ \& \ S_n &= T_n + (T_n-d) + (T_n-2d) + \dots + a && \dots n \text{ terms} \\ \therefore 2S_n &= (a+T_n) + (a+T_n) + (a+T_n) + \dots (a+T_n) && \dots n \text{ terms} \end{aligned}$$

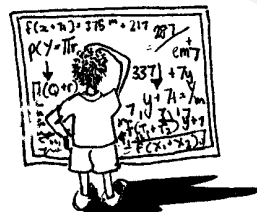
$$\therefore 2S_n = n(a+T_n)$$

$$\therefore S_n = \frac{n}{2}(a+T_n) <$$

$$\text{But } T_n = a + (n-1)d$$

$$\therefore S_n = \frac{n}{2}[a + a + (n-1)d]$$

$$\therefore S_n = \frac{n}{2}[2a + (n-1)d] <$$



▶ Geometric Series:

$$\begin{aligned} S_n &= a + ar + ar^2 + ar^3 + \dots + ar^{n-2} + ar^{n-1} && \dots \textcircled{1} \\ \times r) \therefore rS_n &= ar + ar^2 + ar^3 + \dots + ar^{n-1} + ar^n && \dots \textcircled{2} \end{aligned}$$

$$\textcircled{1} - \textcircled{2} \therefore S_n - rS_n = a - ar^n$$

$$\therefore S_n(1-r) = a(1-r^n)$$

$$\therefore S_n = \frac{a(1-r^n)}{1-r} \dots \text{for } r < 1 \quad \text{or} \quad \times \frac{(-1)}{(-1)} \therefore S_n = \frac{a(r^n-1)}{r-1} \dots \text{for } r > 1$$

Choose either depending on the value of r , whichever gives you a positive denominator.

$$\text{Notice that: } \frac{b-a}{d-c} = \frac{-(a-b)}{-(c-d)} = \frac{a-b}{c-d}$$

Annuities:

The derivation of the future and present value formulae, F_v and P_v , using the sum formula of a geometric sequence, must be understood, but is not examinable. See Topic 5 (Financial Maths) in the Gr 12 Maths 2 in 1 study guide.



PAPER 2

▶ Circle Geometry Theorems

- 1** The line segment drawn from the centre of a circle, perpendicular to a chord, bisects the chord.

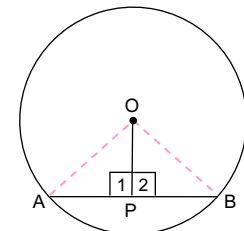
Given: $\odot O$ with $OP \perp AB$

To prove: $AP = PB$

Construction: Join OA and OB

Proof: In $\triangle OPA$ & OPB

- (1) $OA = OB$... radii
 - (2) $\hat{P}_1 = \hat{P}_2 (= 90^\circ)$... given
 - (3) OP is common
- $$\therefore \triangle OPA \equiv \triangle OPB \dots \angle S$$
- $$\therefore AP = PB, \text{ i.e. } OP \text{ bisects chord } AB$$



- 2** The angle which an arc of a circle subtends at the centre is double the angle it subtends at any point on the circumference.

Given: $\odot O$, arc AB subtending $\hat{AOB}$ at the centre and $\hat{APB}$ at the circumference.

To prove: $\hat{AOB} = 2\hat{APB}$

Construction: Join PO and produce it to Q .

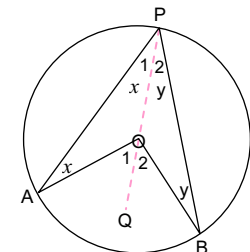
Proof: Let $\hat{P}_1 = x$

Then $\hat{A} = x$... radii equal

$\therefore \hat{O}_1 = 2x$... exterior $\angle$ of $\triangle AOP$

Similarly, if $\hat{P}_2 = y$, then $\hat{O}_2 = 2y$

$\therefore \hat{AOB} = 2x + 2y = 2(x+y) = 2\hat{APB}$



- 3** The opposite angles of a cyclic quadrilateral are supplementary.

Given: $\odot O$ and cyclic quadrilateral $ABCD$

To prove: $\hat{A} + \hat{C} = 180^\circ$ & $\hat{B} + \hat{D} = 180^\circ$

Construction: Join BO and DO .

Proof: Let $\hat{A} = x$

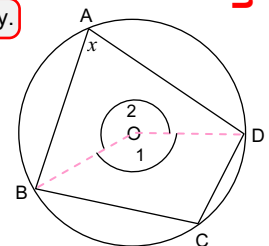
Then $\hat{O}_1 = 2x$... $\angle$ at centre = $2 \times \angle$ at circumference

$\therefore \hat{O}_2 = 360^\circ - 2x$... $\angle$ about point O

$\therefore \hat{C} = \frac{1}{2}(360^\circ - 2x) = 180^\circ - x$... $\angle$ at centre = $2 \times \angle$ at circumference

$\therefore \hat{A} + \hat{C} = 180^\circ$

& $\therefore \hat{B} + \hat{D} = 180^\circ$... sum of the $\angle$ s of a quadrilateral = 360°



- 4 The angle between a tangent to a circle and a chord drawn from the point of contact is equal to the angle subtended by the chord in the alternate segment.

Given: Tangent AC and chord AB subtending $\hat{APB}$, with C & P on opposite sides of AB.

To prove: $\hat{A}_1 = \hat{APB}$,

Construction: Draw diameter AD and join DP.

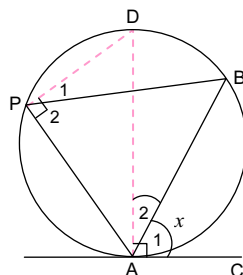
Proof: We have $\hat{DAC} = 90^\circ \dots \text{diameter} \perp \text{tangent}$
 & $\hat{DPA} = 90^\circ \dots \angle \text{ in semi-}\odot$

$$\therefore \hat{A}_1 + \hat{A}_2 = 90^\circ$$

$$\text{and } \hat{P}_1 + \hat{P}_2 = 90^\circ$$

$$\text{But } \hat{A}_2 = \hat{P}_1 \dots \angle^s \text{ in same seg.}$$

$$\therefore \hat{A}_1 = \hat{P}_2 (= \hat{APB})$$



Remember:

Always give
REASONS for
each statement!

The Proportion Theorem

- 5 A line parallel to one side of a triangle divides the other two sides proportionally.

i.e. $DE \parallel BC \Rightarrow \frac{AD}{DB} = \frac{AE}{EC}$

Given: $\triangle ABC$ with $DE \parallel BC$,
D & E on AB & AC respectively.

To prove: $\frac{AD}{DB} = \frac{AE}{EC}$

Construction: Join DC & BE

Proof: $\frac{\text{Area of } \triangle ADE}{\text{Area of } \triangle DBE} = \frac{\frac{1}{2}AD \cdot h}{\frac{1}{2}DB \cdot h} = \frac{AD}{DB}$

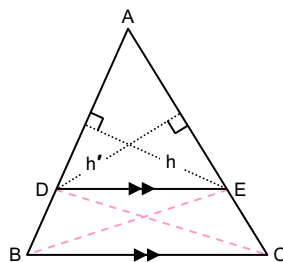
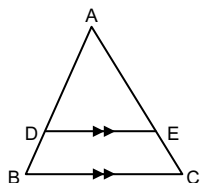
Similarly: $\frac{\text{Area of } \triangle ADE}{\text{Area of } \triangle EDC} = \frac{\frac{1}{2}AE \cdot h'}{\frac{1}{2}EC \cdot h'} = \frac{AE}{EC}$

But: $\triangle DBE = \triangle EDC \dots$ *on the same base DE;
between $\parallel$ lines, DE & BC*

and: $\triangle ADE$ is common

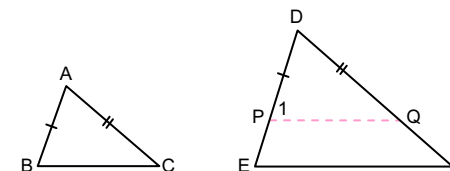
$$\therefore \frac{\text{Area of } \triangle ADE}{\text{Area of } \triangle DBE} = \frac{\text{Area of } \triangle ADE}{\text{Area of } \triangle EDC}$$

$$\therefore \frac{AD}{DB} = \frac{AE}{EC} \quad \blacktriangleleft$$



The Similar $\triangle^s$ Theorem

- 6 If two triangles are equiangular, then their sides are proportional and, therefore, they are similar.



Given: $\triangle ABC$ & $\triangle DEF$ with $\hat{A} = \hat{D}$ $\hat{B} = \hat{E}$ & $\hat{C} = \hat{F}$

To prove: $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

Construction: Mark P & Q on DE & DF such that $DP = AB$ & $DQ = AC$

Proof: In $\triangle^s DPQ$ & ABC

(1) $DP = AB \dots \text{construction}$

(2) $DQ = AC \dots \text{construction}$

(3) $\hat{D} = \hat{A} \dots \text{given}$

$\therefore \triangle DPQ \equiv \triangle ABC \dots S\angle S$

$$\therefore \hat{1} = \hat{B}$$

$$= \hat{E} \dots \text{given}$$

**The
focus
point**

$\therefore PQ \parallel EF \dots \text{corresponding } \angle^s \text{ equal}$

$\therefore \frac{DP}{DE} = \frac{DQ}{DF} \dots \text{proportion theorem}$

But $DP = AB$ and

$DQ = AC \dots \text{construction}$

$$\therefore \frac{AB}{DE} = \frac{AC}{DF}$$

Similarly, by marking S and T on DE and EF such that
 $SE = AB$ and $ET = BC$, it can be proved that: $\frac{AB}{DE} = \frac{BC}{EF}$

$$\therefore \frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF} \quad \blacktriangleleft$$

$\therefore \triangle ABC$ and $\triangle DEF$ are similar.

Similar $\triangle^s$

$\triangle^s$ are similar if: **A:** they are equiangular, and
B: their sides are proportional

In this proof, we show that **A** $\Rightarrow$ **B**

$\therefore$ The $\triangle^s$ are similar $\dots$ Both conditions, **A** and **B**, apply

*The converse statement says: **B** $\Rightarrow$ **A***
 $\therefore$ The $\triangle^s$ are similar



TRIGONOMETRY

Area, Sine & Cosine Rules

1 The Area rule

$$\text{Area of } \triangle ABC = \frac{1}{2} ab \sin C$$

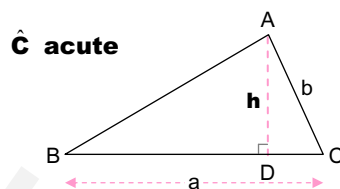
Construction: Draw $AD \perp BC$

Proof: Area of $\triangle ABC = \frac{1}{2} ah$... ①

$$\text{But } \frac{h}{b} = \sin C$$

$$\therefore h = b \sin C \quad \dots ②$$

② in ①: $\therefore \text{Area of } \triangle ABC = \frac{1}{2} ab \sin C$



2 The Sine rule

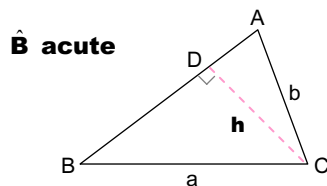
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Construction: Draw $CD \perp AB$

Proof: In $\triangle ADC$: $\frac{h}{b} = \sin A$
 $\therefore h = b \sin A \quad \dots ①$

In $\triangle BDC$: $\frac{h}{a} = \sin B$
 $\therefore h = a \sin B \quad \dots ②$

Equating ① & ②: $\therefore b \sin A = a \sin B$
 $\div ab) \therefore \frac{\sin A}{a} = \frac{\sin B}{b}$



Similarly, by drawing a perpendicular from **B**, one can prove: $\frac{\sin A}{a} = \frac{\sin C}{c}$

$$\therefore \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

3 The Cosine rule

$$a^2 = b^2 + c^2 - 2bc \cos A$$

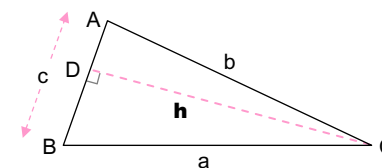
Construction: Draw $CD \perp BA$

Proof: $a^2 = BD^2 + h^2 \quad \dots \text{Pythagoras}$
 $\therefore a^2 = (c - AD)^2 + h^2$
 $= c^2 - 2c \cdot AD + AD^2 + h^2$
 $= c^2 - 2c \cdot AD + b^2 \quad \dots \text{Pythagoras}$
 $= b^2 + c^2 - 2c \cdot AD \quad \dots ①$

In $\triangle ADC$: $\frac{AD}{b} = \cos A$
 $\therefore AD = b \cos A \quad \dots ②$

② in ①:
 $\therefore a^2 = b^2 + c^2 - 2bc \cos A$

A acute:



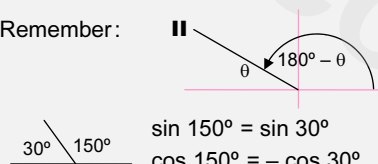
► Always construct the height from a vertex not involved in the formula:

i.e. To prove: $\text{Area} = \frac{1}{2} ab \sin C$, draw a height from A or B, not C.

To prove: $\frac{\sin A}{a} = \frac{\sin B}{b}$, draw a height from C, not A or B.

To prove: $a^2 = b^2 + c^2 - 2bc \cos A$, draw a height from B or C, not A.

► Remember:



$$\sin(180^\circ - \theta) = \sin \theta$$

$$\cos(180^\circ - \theta) = -\cos \theta$$

$$\begin{array}{l} 30^\circ / 150^\circ \\ \sin 150^\circ = \sin 30^\circ \\ \cos 150^\circ = -\cos 30^\circ \end{array}$$

$$\begin{array}{l} y / x \\ x + y = 180^\circ \rightarrow \sin x = \sin y \\ \cos x = -\cos y \end{array}$$

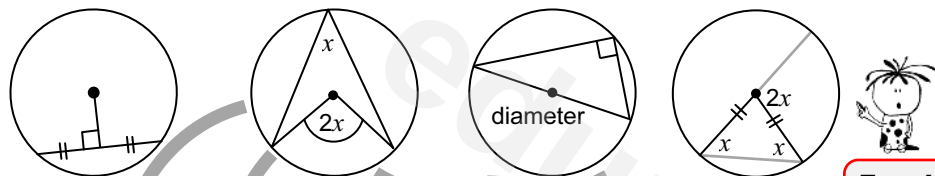
Formulae for Compound Angles

- The derivation of the formula: $\cos(A - B) = \cos A \cos B + \sin A \sin B$ will not be examined. (However, it is always good to understand how a formula arises!). There is an easy guide to this derivation in Topic 6 in the Gr 12 Maths 2 in 1 Study guide.
- You do need to know how to derive all the other formulae from this formula for $\cos(A - B)$. See examples of this, also found in Topic 6 in the Gr 12 Maths 2 in 1 Study guide.



GROUPING OF CIRCLE GEOMETRY THEOREMS

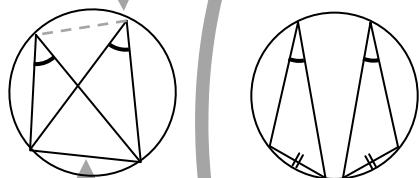
I The 'Centre' group



The grey arrows indicate how various theorems are used to prove subsequent ones.

Equal radii!

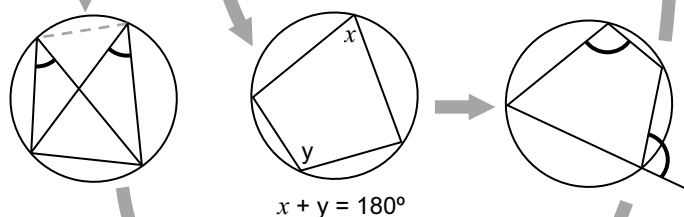
The 'No Centre' group



Equal chords!

Equal chords subtend equal angles and, vice versa, equal angles are subtended by equal chords.

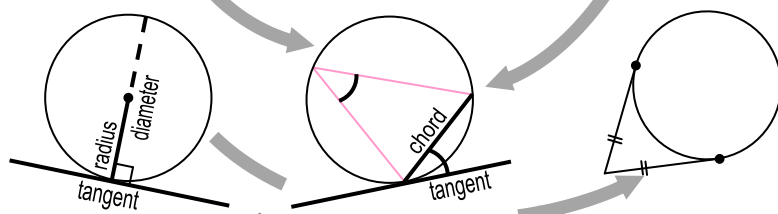
The 'Cyclic Quadrilateral' group



$$x + y = 180^\circ$$

There are 3 ways to prove that a quad. is a cyclic quad.

IV The 'Tangent' group



There are 2 ways to prove that a line is a tangent to a $\odot$.

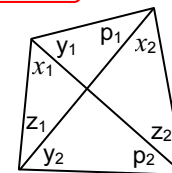
Equal tangents!

3 ways to prove that a quadrilateral is cyclic

We use **3 converse theorem** statements to prove that a quadrilateral is cyclic.

converse of ' $\angle$'s in same segment' theorem

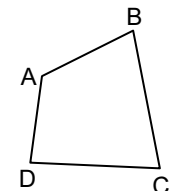
- Prove that one side subtends equal angles at the two other points (on the same side).



Either prove:
 $x_1 = x_2$
 or $y_1 = y_2$
 or $z_1 = z_2$
 or $p_1 = p_2$

converse of ' $\angle$'s of c.q.' theorem

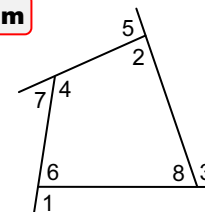
- Prove that a pair of opposite angles is supplementary.



Either prove:
 $\hat{A} + \hat{C} = 180^\circ$
 or $\hat{B} + \hat{D} = 180^\circ$

converse of 'exterior $\angle$ of c.q.' theorem

- Prove that an exterior angle of a quadrilateral is equal to the interior opposite angle.



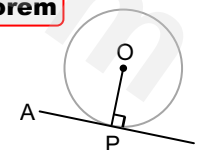
Either prove:
 $\hat{1} = \hat{2}$
 or $\hat{3} = \hat{4}$
 or $\hat{5} = \hat{6}$
 or $\hat{7} = \hat{8}$

2 ways to prove that a line is a tangent to a $\odot$

We use **2 converse theorem** statements to prove that a line is a tangent to a $\odot$.

converse of 'tangent $\perp$ radius' theorem

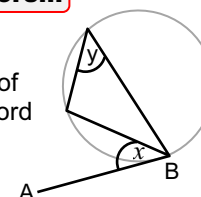
- Prove that the line is perpendicular to a radius at a point where the radius meets the circumference.



Prove that $OP \perp AB$;
 then AB will be a tangent

converse of 'tan-chord' theorem

- Prove that when the line is drawn through the end point of a chord, it makes with the chord an angle equal to an angle in the alternate segment.



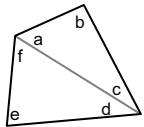
Prove that
 $x = y$;
 then AB
 will be
 a tangent

Note:
 It is a good idea to draw a faint circle (as shown) to see this converse theorem clearly.

QUADRILATERALS - pathways of definitions, areas and properties - A Summary

All you need to know!

'Any' Quadrilateral



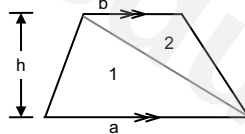
Sum of the $\angle^s$ of any quadrilateral = 360°

$$\begin{aligned} \text{Sum of the interior angles} &= (a + b + c) + (d + e + f) \\ &= 2 \times 180^\circ \dots (2 \Delta^s) \\ &= 360^\circ \end{aligned}$$

The arrows indicate various 'ROUTES' from 'any' quadrilateral to the square (the 'ultimate quadrilateral'). These routes, which combine logic and fact, are essential to use when proving specific types of quadrilaterals.

See how the properties accumulate as we move from left to right. i.e. the first quad has no special properties and each successive quadrilateral has all preceding properties.

A Trapezium

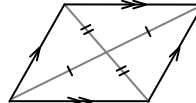


DEFINITION:
Quadrilateral with 1 pair of opposite sides $\parallel$

$$\begin{aligned} \text{Area} &= \Delta 1 + \Delta 2 \\ &= \frac{1}{2} ah + \frac{1}{2} bh \\ &= \frac{1}{2} (a + b) \cdot h \end{aligned}$$

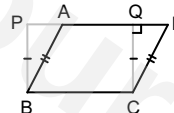
'Half the sum of the $\parallel$ sides $\times$ the distance between them.'

A Parallelogram



DEFINITION:
Quadrilateral with 2 pairs opposite sides $\parallel$

Area = base $\times$ height



$\parallel^m$ ABCD = ABCQ + Δ QCD
rect. PBCQ = ABCQ + Δ PBA
where Δ QCD $\equiv$ Δ PBA $\dots$ SS90 $^\circ$
 $\therefore \parallel^m$ ABCD = rect. PBCQ (in area)
= BC $\times$ QC

Properties:

2 pairs opposite sides equal
2 pairs opposite angles equal
& **DIAGONALS BISECT ONE ANOTHER**

DEFINITION:
Quadrilateral with 2 pairs of consecutive sides equal

Given diagonals a and b

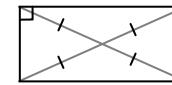
$$\text{Area} = 2\Delta^s = 2 \left(\frac{1}{2} b \cdot \frac{a}{2} \right) = \frac{ab}{2}$$

'Half the product of the diagonals'

THE DIAGONALS

- cut perpendicularly
- the **LONG DIAGONAL** bisects: the short diagonal, the opposite angles and the area of the kite

A Rectangle



DEFINITION:
A $\parallel^m$ with one right $\angle$

$$\text{Area} = \ell \times b$$

DIAGONALS are EQUAL

The Square



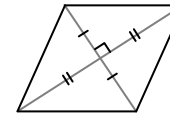
the 'ultimate' quadrilateral!

$$\text{Area} = s^2$$

Properties:

It's all been said 'before'!
Since a square is a rectangle, a rhombus, a parallelogram, a kite, ... **ALL** the properties of these quadrilaterals apply.

A Rhombus



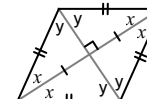
DEFINITION:
A $\parallel^m$ with one pair of adjacent sides equal

Area
= $\frac{1}{2}$ **product of diagonals** (as for a kite)
or
= **base $\times$ height** (as for a parallelogram)

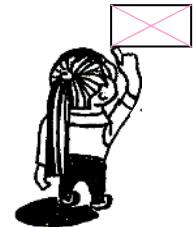
THE DIAGONALS

- bisect one another **PERPENDICULARLY**
- bisect the angles of the rhombus
- bisect the area of the rhombus

Note:



$$\begin{aligned} 2x + 2y &= 180^\circ \dots \angle^s \text{ of } \Delta \text{ or co-int. } \angle^s \text{ suppl.} \\ \Rightarrow x + y &= 90^\circ \end{aligned}$$



Quadrilaterals play a prominent role in both Euclidian and Analytical Geometry right through to Grade 12!

SUMMARY : TRIGONOMETRY (Gr. 12)

The ANSWER SERIES



THE RATIOS

& their

DEFINITIONS :

$\sin \theta$	$\cos \theta$	$\tan \theta$

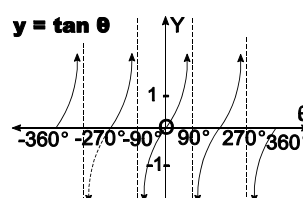
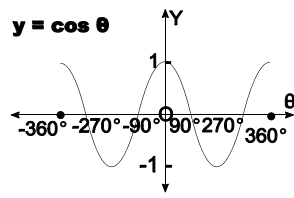
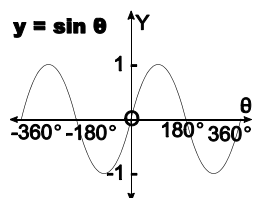
SIGNS :

CRITICAL VALUES :

MINIMUM & MAXIMUM VALUES : ($\sin \theta$ & $\cos \theta$)
(see denominator !)

$$-1 \leq \frac{\sin \theta}{\cos \theta} \leq 1$$

GRAPHS :



MUTUAL RELATIONSHIPS

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

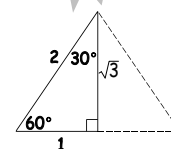


$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\therefore \sin^2 \theta = 1 - \cos^2 \theta$$

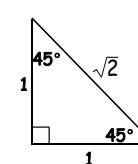
$$\& \cos^2 \theta = 1 - \sin^2 \theta$$

SPECIAL L^s

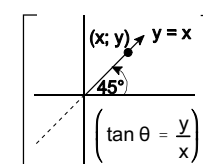


$$\sin 30^\circ = \frac{1}{2}$$

$$\left(\text{and } \cos 60^\circ = \frac{1}{2} \right)$$



$$\tan 45^\circ = 1$$



& THEIR "FAMILIES" :

30° "family"	60° "family"	45° "family"	
II 150°	II 120°	II 135°	◀ 180° - ●
III 210°	III 240°	III 225°	◀ 180° + ●
IV 330°	IV 300°	IV 315°	◀ 360° - ●

GENERAL FORMS

any ratio $\begin{bmatrix} 180^\circ - \theta \\ 180^\circ + \theta \\ 360^\circ - \theta \\ -\theta \end{bmatrix} = \pm$ that **SAME** ratio of θ

CO-RATIOS (sine and cosine)

90° - θ (an acute angle)

$$\sin(90^\circ - \theta) = \cos \theta$$

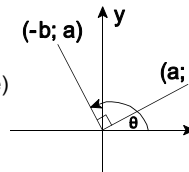
$$\cos(90^\circ - \theta) = \sin \theta$$



90° + θ (an obtuse angle)

$$\sin(90^\circ + \theta) = \cos \theta$$

$$\cos(90^\circ + \theta) = -\sin \theta$$



SOLUTION OF Δ^s

For non-right angled Δ^s :

$$\text{AREA} = \frac{1}{2} ab \sin C$$

SINE rule

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

COSINE rule

$$c^2 = a^2 + b^2 - 2ab \cos C$$

But remember : area of $\Delta = \frac{1}{2} bh$ as well

And in RIGHT-ANGLED Δ^s :

use regular trig. ratios & the theorem of Pythagoras !!!

COMPOUND L^s

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$



$$\sin 2x = 2 \sin x \cos x$$

$$\cos 2x = \cos^2 x - \sin^2 x$$

$$= 1 - 2 \sin^2 x$$

$$= 2 \cos^2 x - 1$$

CALCULATOR INSTRUCTIONS



MEAN AND STANDARD DEVIATION

There are 3 phases for each calculator procedure:

STEP 1: how to get there

STEP 2: how to enter the data

STEP 3: how to find the mean and the standard deviation.
(and, in the next column, A, B and r)



Ungrouped Data

Casio fx-82ES

- ◆ [MODE] [2 : STAT] [1 : 1 - VAR]
- ◆ Enter each value, followed by [=]
after the last value: [=] **[AC]** ← *
- ◆ To find the **mean**: [SHIFT] [STAT] [5 : VAR] [2 : $\bar{x}$] [=] ←
- ◆ To find the **S.D.**: [SHIFT] [STAT] [5 : VAR] [3 : σn] [=] ←

You'll see:

X	FREQ
1 ...	automatically
2 ...	entered
3 ...	as 1

* → Note for Casio fx-82ES

It is essential to use **[AC]** at the end of entering all the data.

If this is not done, the mean and standard deviation
will be added as entries in the data table.
(These would then need to be deleted.)

Sharp EL-531WH

- ◆ [MODE] [1 : STAT] - to get into stats mode ...
then [0 : SD]
- ◆ Enter each value, followed by [M+]
- ◆ To find the **mean**: [RCL] [$\bar{x}$] ←
- ◆ To find the **S.D.**: [RCL] [σx] ←

You'll see:

Stat
0.



Grouped Data/Frequency Tables

Casio fx-82ES

- ◆ [MODE] [2 : STAT] [1 : 1 - VAR]
[SHIFT] [SETUP] Scroll down (use arrow)
[3 : STAT] [1 : ON]
- ◆ Enter the midpoint of each interval
(or each score if provided) followed by [=], then ...
After the last value: [=] - and not **[AC]** - then ...
- Use to move to the top of the right-hand column.
- Type in the correct frequencies followed by [=] each
time; after the last frequency: [=] **[AC]** ← *

You'll see:

X	FREQ
1 ...	...
2 ...	...
3 ...	...

- ◆ To find the **mean**: [SHIFT] [STAT] [5 : VAR] [2 : $\bar{x}$] [=] ←
- ◆ To find the **S.D.**: [SHIFT] [STAT] [5 : VAR] [3 : σn] [=] ←

Sharp EL-531WH

- ◆ [MODE] [1 : STAT] - to get into stats mode ...
then [0 : SD]
- ◆ Enter midpoint of each interval (or each score if
provided), followed by **[STO]**.
Then enter the frequency followed by [M+].
(Enter all the data like this.)
- ◆ To find the **mean**: [RCL] [$\bar{x}$] ←
- ◆ To find the **S.D.**: [RCL] [σx] ←

You'll see:

Stat
0.

REGRESSION & CORRELATION

The equation of the regression line

Brief instructions for the **CASIO fx - 82ES**

STEP 1:

Press/Select: **MODE** ; 2 (STAT) ; 2 (A + Bx)

STEP 2:

Enter the **x** and **y** values, each followed by [=].

Press **AC**

STEP 3:

Press **SHIFT** **STAT** (on '1') ; 7 (Reg) ; then:

For **A**, press 1 [=] or For **B**, press 2 [=]

To find **B** after **A**, press **AC**
and then do the whole of **STEP 3**.

The correlation coefficient

Just like for **A** and **B** in the regression function:

Brief instructions for the **CASIO fx - 82ES**

STEP 1:

Press/Select: **MODE** ; 2 (STAT) ; 2 (A + Bx)

STEP 2:

Enter the **x** and **y** values, each followed by [=].

Press **AC**

STEP 3:

Press **SHIFT** **STAT** (on '1') ; 7 (Reg) ; then:

But, now: For **r** press 3 [=]

If you have found **A** and **B** first, press **AC**
before going back to the beginning of **STEP 3**.