

ABBREVIATION USED IN DEDUCTIVE GEOMETRY**A. Properties of Plane Geometry**

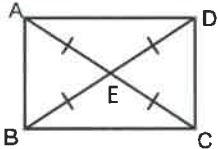
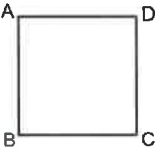
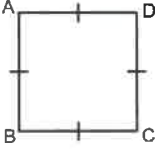
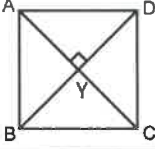
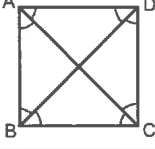
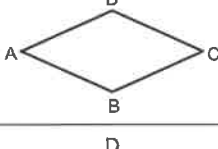
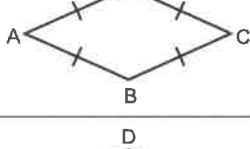
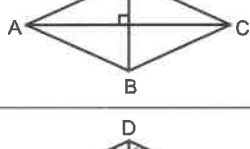
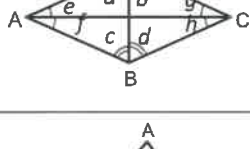
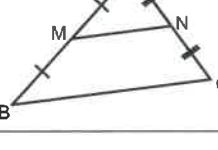
No.	Diagram	Given Condition	Conclusion	Abbreviation
1		a and b are adjacent angles on a straight line	$a + b = 180^\circ$	adj. \angle s on st. line 有線上的鄰角
2		a , b and c are angles at a point	$a + b + c = 360^\circ$	\angle s at a pt. 同頂角
3		Two straight lines AB and CD intersect at point O	$a = b$ and $c = d$	vert. opp. \angle s 對頂角
4(i)		$AB \parallel CD$	$a = b$	corr. \angle s, $AB \parallel CD$ 同位角, $AB \parallel CD$
4(ii)		$a = b$	$AB \parallel CD$	corr. \angle s equal 同位角相等
5(i)		$AB \parallel CD$	$c = d$	alt. \angle s, $AB \parallel CD$ 內錯角, $AB \parallel CD$
5(ii)		$c = d$	$AB \parallel CD$	alt. \angle s equal 內錯角相等
6(i)		$AB \parallel CD$	$e + f = 180^\circ$	int. \angle s, $AB \parallel CD$ 同旁內角, $AB \parallel CD$
6(ii)		$e + f = 180^\circ$	$AB \parallel CD$	int. \angle s supp. 同旁內角互補
7		ABC is a Δ	$a + b + c = 180^\circ$	\angle sum of Δ 內角和
8		ABC is a Δ	$c_1 = a + b$	ext. \angle of Δ Δ 外角

No.	Diagram	Given Condition	Conclusion	Abbreviation
9		$AB = AC$	$\angle B = \angle C$	base \angle s, isos. Δ 等腰 Δ 底角.
10a		$AB = AC$ and $BD = DC$	$\angle BAD = \angle CAD$ and $AD \perp BC$	prop. of isos. Δ 等腰 Δ 性質.
10b		$AB = AC$ and $AD \perp BC$	$BD = CD$ and $\angle BAD = \angle CAD$	prop. of isos. Δ 等腰 Δ 性質.
10c		$AB = AC$ and $\angle BAD = \angle CAD$	$AD \perp BC$ and $BD = CD$	prop. of isos. Δ 等腰 Δ 性質.
11		$\angle B = \angle C$	$AB = AC$	sides opp. equal \angle s 等角對邊相等.
12		$AB = BC = AC$	$\angle A = \angle B = \angle C = 60^\circ$	prop. of equil. Δ 等邊 Δ 性質.
13		$\angle A = \angle B = \angle C$	$BC = AC = AB$	prop. of equil. Δ 等邊 Δ 性質.
14		$a_1, a_2, a_3, \dots, a_n$ are the interior angles of a n -sided convex polygon	$a_1 + a_2 + a_3 + \dots + a_n$ $= (n - 2) \times 180^\circ$	\angle sum of polygon 多邊形內角和.
15		The sides of an n - sided convex polygon are produced in order.	$x_1 + x_2 + x_3 + \dots + x_n = 360^\circ$	sum of ext. \angle s of polygon 多邊形外角和.

No.	Diagram	Given Condition	Conclusion	Abbreviation
16		$AB = XY$ and $AC = XZ$ and $BC = YZ$	$\triangle ABC \cong \triangle XYZ$	SSS
17		$AB = XY$ and $AC = XZ$ and $\angle A = \angle X$	$\triangle ABC \cong \triangle XYZ$	SAS
18		$AB = XY$ and $\angle A = \angle X$ and $\angle B = \angle Y$	$\triangle ABC \cong \triangle XYZ$	ASA
19		$AB = XY$ and $\angle A = \angle X$ and $\angle C = \angle Z$	$\triangle ABC \cong \triangle XYZ$	AAS
20		$AB = XY$ and $AC = XZ$ and $\angle C = \angle Z = 90^\circ$	$\triangle ABC \cong \triangle XYZ$	RHS
21		$\triangle ABC \cong \triangle XYZ$	$AB = XY$ and $AC = XZ$ and $BC = YZ$	corr. sides, $\cong \Delta$ s 全等△對應邊
22		$\triangle ABC \cong \triangle XYZ$	$\angle A = \angle X$ and $\angle B = \angle Y$ and $\angle C = \angle Z$	corr. \angle s, $\cong \Delta$ s 全等△對應角

No.	Diagram	Given Condition	Conclusion	Abbreviation
23		$\angle A = \angle X$ and $\angle B = \angle Y$ and $\angle C = \angle Z$	$\triangle ABC \sim \triangle XYZ$	AAA
24		$\frac{AB}{XY} = \frac{BC}{YZ} = \frac{CA}{ZX}$	$\triangle ABC \sim \triangle XYZ$	3 sides prop. 三邊成比例
25		$\frac{AB}{XY} = \frac{AC}{XZ}$ and $\angle A = \angle X$	$\triangle ABC \sim \triangle XYZ$	ratio of 2 sides, inc. \angle 兩邊成比例且夾角相等.
26		$\triangle ABC \sim \triangle XYZ$	$\frac{AB}{XY} = \frac{BC}{YZ} = \frac{CA}{ZX}$	corr. sides, $\sim \Delta$ s 相似 Δ 等邊長.
27		$\triangle ABC \sim \triangle XYZ$	$\angle A = \angle X$ and $\angle B = \angle Y$ and $\angle C = \angle Z$	corr. \angle s, $\sim \Delta$ s 相似 Δ 對角相等.
28		ABC is a Δ	$AB + BC > AC$ $BC + AC > AB$ $AB + AC > BC$	
29		I is the incentre of $\triangle ABC$	I is the intersection of the angle bisectors, i.e. $\angle BAX = \angle IAX$ $\angle ABY = \angle IBY$ $\angle BCZ = \angle ICA$	incentre of Δ 三角形內心.
30		I is the centroid of $\triangle ABC$	I is the intersection of the medians, i.e. $AZ = ZB$ $BX = XC$ $AY = YC$ $\frac{AI}{IX} = \frac{BI}{IY} = \frac{CI}{IZ} = \frac{2}{1}$	centroid of Δ 三角形重心.
31		I is the orthocentre of $\triangle ABC$	I is the intersection of the altitudes, i.e. $AX \perp BC$ $BY \perp AC$ $CZ \perp AB$	orthocentre of Δ 三角形垂心.

No.	Diagram	Given Condition	Conclusion	Abbreviation
32		I is the circumcentre of $\triangle ABC$	I is the intersection of the perpendicular bisectors, i.e. $IX \perp BC$ and $BX = XC$ $IY \perp AC$ and $AY = YC$ $IZ \perp AB$ and $AZ = ZB$	circumcentre of \triangle 三角形的外接圓.
33		$ABCD$ is a //gram	$AB = DC$ and $AD = BC$	opp. sides of //gram 平行四邊形的對邊
34		$ABCD$ is a //gram	$\angle A = \angle C$ and $\angle B = \angle D$	opp. \angle s of //gram 平行四邊形對角.
35		$ABCD$ is a //gram and O is the intersection of diagonals	$AO = OC$ and $BO = OD$	diags. of //gram 平行四邊形的對角線
36		$AB = DC$ and $AD = BC$	$ABCD$ is a //gram	opp. sides equal 對邊相等.
37		$\angle A = \angle C$ and $\angle B = \angle D$	$ABCD$ is a //gram	opp. \angle s equal 對角相等.
38		$AO = OC$ and $BO = OD$	$ABCD$ is a //gram	diags. bisect each other 對角線互相平分.
39		$AD = BC$ and $AD \parallel BC$	$ABCD$ is a //gram	opp. sides equal and // 對邊//且相等.
40		$ABCD$ is a rectangle	All properties of a //gram	prop. of rectangle 長方形性質.
41		$ABCD$ is a rectangle	All the interior angles are right angles	
42		$ABCD$ is a rectangle	Diagonals are equal ($AC = BD$)	

No.	Diagram	Given Condition	Conclusion	Abbreviation
43		$ABCD$ is a rectangle	Diagonals bisect each other into four equal parts ($AE = EC = BE = DE$)	prop. of rectangle 長方形性質
44		$ABCD$ is a square	All properties of a rectangle	prop. of square 正方形性質
45		$ABCD$ is a square	All sides are equal	
46		$ABCD$ is a square	Diagonals are perpendicular to each other ($AC \perp BD$)	
47		$ABCD$ is a square	Angles between each diagonal and a side is 45°	
48		$ABCD$ is a rhombus	All properties of a //gram	prop. of rhombus 菱形性質
49		$ABCD$ is a rhombus	All sides are equal	
50		$ABCD$ is a rhombus	Diagonals are perpendicular to each other ($AC \perp BD$)	
51		$ABCD$ is a rhombus	Interior angles are bisected by the diagonals ($a = b = c = d$ and $e = f = g = h$)	
52		$AM = MB$ and $AN = NC$	$MN \parallel BC$ and $MN = \frac{1}{2} BC$	mid-pt. thm. 中點定理

No.	Diagram	Given Condition	Conclusion	Abbreviation
53		$L_1 \parallel L_2 \parallel L_3$ and $AB = BC$	$DE = EF$	intercept thm. 截線定理
54		$AM = MB$ and $MN \parallel BC$	$AN = NC$	intercept thm. 截線定理
55		In $\triangle ABC$, $\angle ABC = 90^\circ$	$AB^2 + BC^2 = AC^2$	Pyth. thm. 畢氏定理
56		In $\triangle ABC$, $AB^2 + BC^2 = AC^2$	$\angle ABC = 90^\circ$	converse of Pyth. thm. 畢氏定理的逆定理
57		$ABCD$ is an isos. trapezium	$AD \parallel BC$, $AB = DC$, $AE = DF$, $AC = DB$, $BE = FC$, $AD = EF$, $\angle ABC = \angle DCB$, $\angle BAD = \angle CDA$.	Nil / prop. of isos. trapezium
58		$ABCD$ is a kite	$AB = AD$, $BC = DC$, $\angle ABC = \angle ADC$, $a_1 = a_2$, $c_1 = c_2$, $b_1 = d_1$, $b_2 = d_2$, $AC \perp BD$, $BO = DO$.	Nil / prop. of a kite

