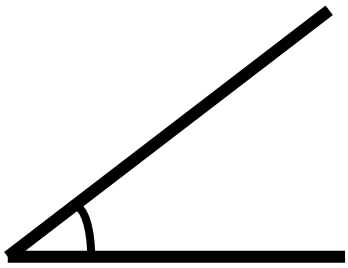
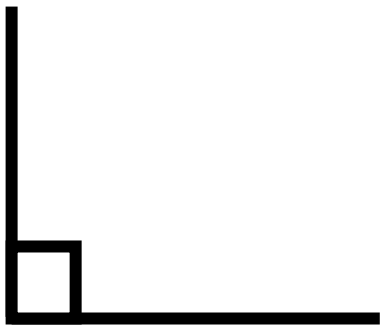
Angles.

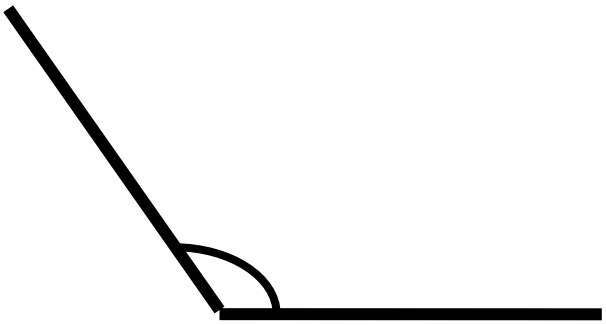
Types



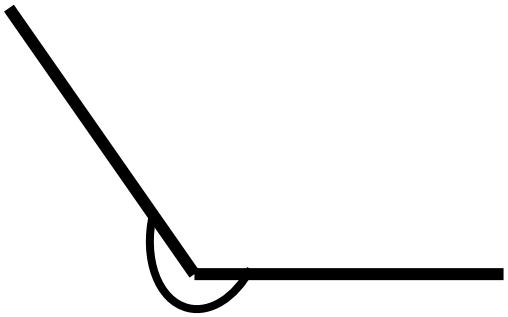
Acute angle.
- are always less than 90^o



Right angle.
- Exactly 90^o



Obtuse angles are greater than 90^o but smaller than 180^o

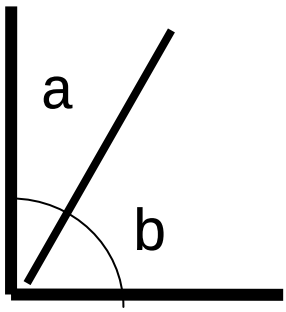


Reflex angles are greater than 180^o but less than 360^o

Full circle
Exactly 360^o

Complementary Angles.

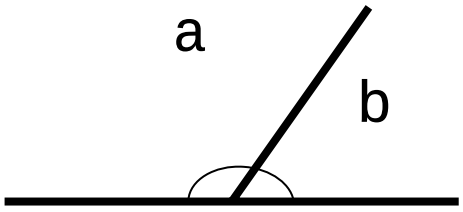
Angles in a right angle add up to 90^o



$a + b = 90^o$

Supplementary Angles.

Angles on a straight line always add up to 180^o

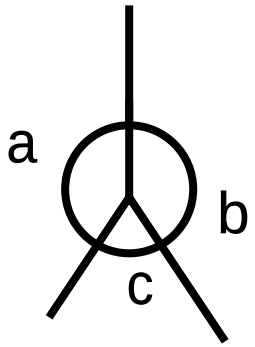


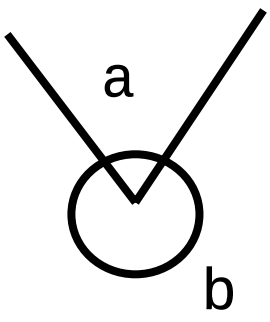
$a + b = 180^o$

Angles at a point

$a + b + c = 360^o$

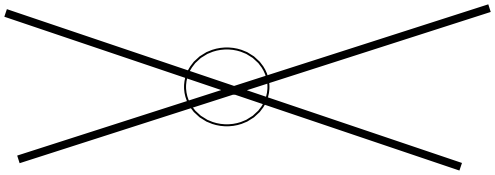
$a + b = 360^o$





Angles at a point make a full turn.
They add up to 360^o

Vertically Opposite Angles.

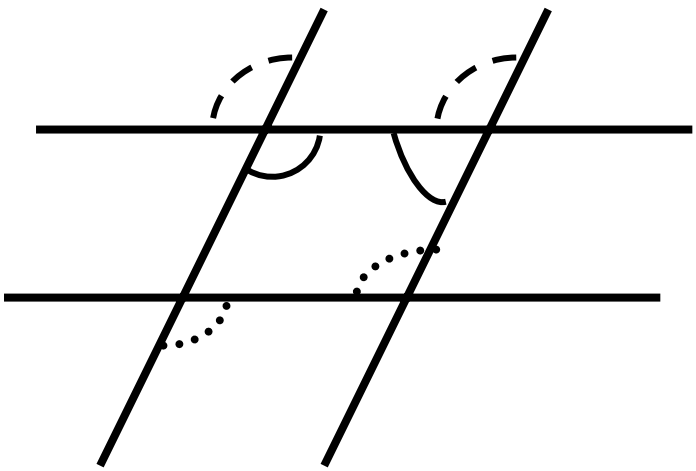


Intersecting straight lines.

All angles add up to 180^o

Opposite angles are equal.

Parallel lines



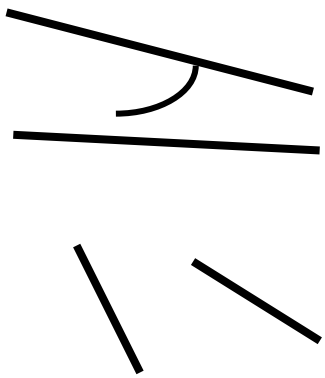
Corresponding angles
– – – – are always equal

····· Alternate angles
are always equal.

—— Allied angles add
up to 180^o

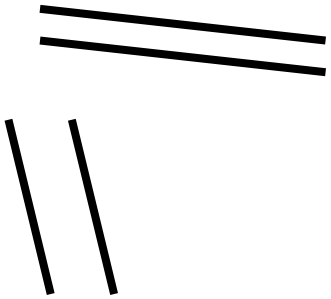
(a + b = 180^o)

Lines.

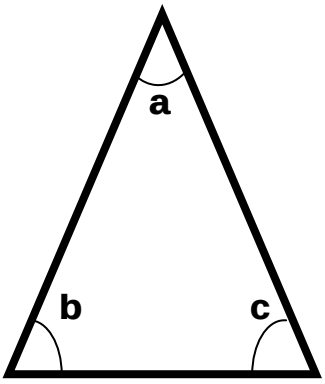


Parallel Lines.

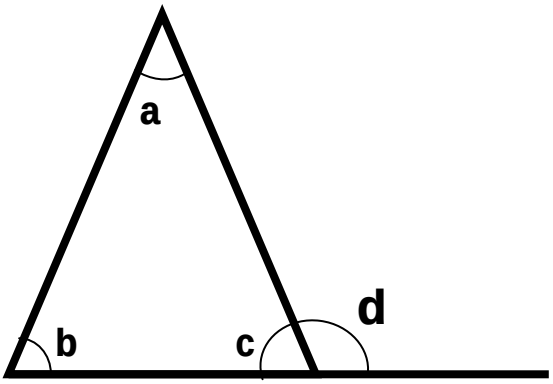
Parallel lines are lines that never meet.
They are marked with small arrows.



Angles and Triangles.



a + b + c = 180°



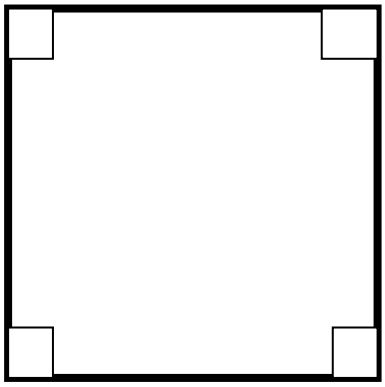
c + d = 180°

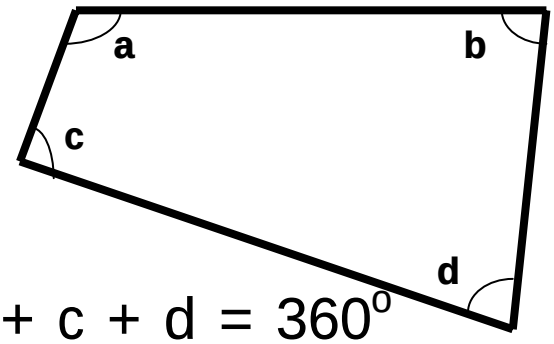
so a + b = d

Angles in a triangle add up to 180^o

Exterior angle is equal to the sum of the opposite interior angles.

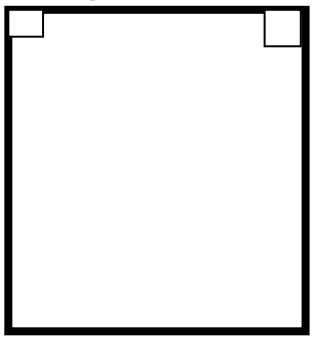
Angles and Quadrilaterals.



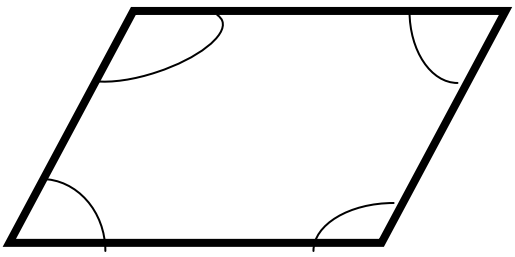


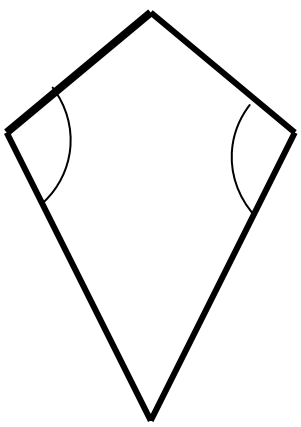
$a + b + c + d = 360^o$

Angles in a quadrilateral add up to 360^o



All angles in a square or rectangle = 90^o





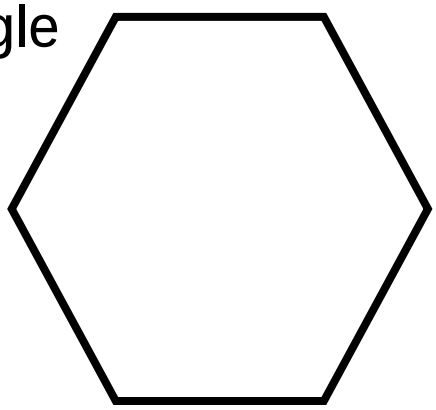
Opposite angles are equal

One pair of opposite angles are equal

In Regular Polygons.

Exterior angle = $360^o \div$ number of sides

Interior angle = 180^o – exterior angle



E.g. Hexagon
Exterior angle = $360^o \div 6 = 60^o$
Interior angle = $180^o - 60^o = 120^o$

Regular Polygons and Angles.

Shape	Exterior Angle ($360^o \div$ number of sides)	Interior Angle (180^o – exterior angle)
Equilateral Triangle	$360^o \div 3 = 120^o$	$180^o - 120^o = 60^o$
Square	$360^o \div 4 = 90^o$	$180^o - 90^o = 90^o$
Pentagon	$360^o \div 5 = 72^o$	$180^o - 72^o = 108^o$
Hexagon	$360^o \div 6 = 60^o$	$180^o - 60^o = 120^o$
Heptagon	$360^o \div 7 = 51.4^o$	$180^o - 51.4^o = 128.6^o$
Octagon	$360^o \div 8 = 45^o$	$180^o - 45^o = 135^o$

Nonagon	$360^o \div 9 = 40^o$	$180^o - 40^o = 140^o$
Decagon	$360^o \div 10 = 36^o$	$180^o – 36^o = 144^o$
Dodecagon	$360^o \div 12 = 30^o$	$180^o – 30^o = 150^o$