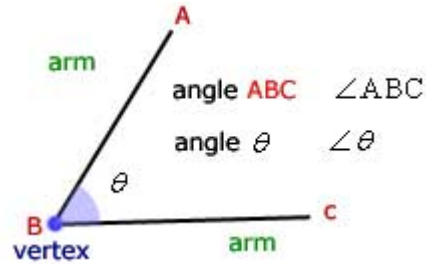
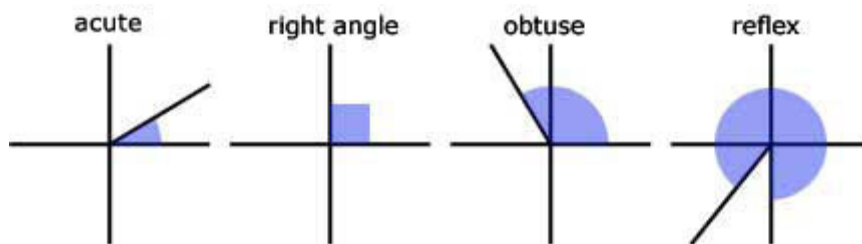


The parts of angles and how angles are named



The names of angles



Angles around a point add up to 360 degrees.

angles at a point
add up to 360°

$a = 360^\circ - (b+c+d+e)$
 $b = 360^\circ - (a+c+d+e)$
 $c = 360^\circ - (a+b+d+e)$

problems - find x

1. $x = 360^\circ - 121^\circ - 82^\circ = 157^\circ$

2. $x = 360^\circ - 81^\circ - 79^\circ - 84^\circ = 116^\circ$

3. $2x = 360^\circ - 69^\circ - 44^\circ - 73^\circ - 123^\circ = 51^\circ$
 $x = 51^\circ / 2 = 25.5^\circ$

4. $3x = 360^\circ - 53^\circ - 85^\circ - 65^\circ - 44^\circ = 113^\circ$
 $x = 113^\circ / 3 = 37.667^\circ$

Angles in a straight line add up to 180 degrees (Supplementary angles)

angles in a straight line add up to 180°

$a = 180^\circ - (b + c)$
 $b = 180^\circ - (a + c)$
 $c = 180^\circ - (a + b)$

1.
$$x = 180^\circ - 82^\circ - 74^\circ$$

$$= 24^\circ$$

2.
$$x = 180^\circ - 84^\circ - 41^\circ$$

$$= 55^\circ$$

3.
$$2x - 180^\circ - 85^\circ - 68^\circ$$

$$x = 27^\circ/2 = 13.5^\circ$$

4.
$$3x - 180^\circ - 67^\circ - 44^\circ$$

$$= 69^\circ/3 = 23^\circ$$

Vertically opposite angles are equal

AB, CD straight lines

$x_1 = x_2$
 $y_1 = y_2$

1.
$$x = 60^\circ (180^\circ - 120^\circ)$$

$$x = y = 60^\circ$$

2.
$$x = 81^\circ$$

$$y = 180^\circ - 78^\circ - 81^\circ = 21^\circ$$

3.
$$y = 69^\circ$$

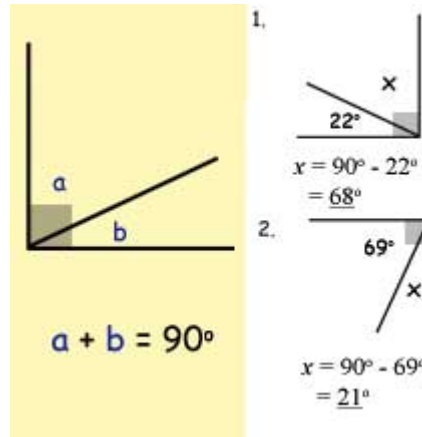
$$x = 180^\circ - 25^\circ - 69^\circ = 86^\circ$$

4.
$$2y = 82^\circ, y = 41^\circ$$

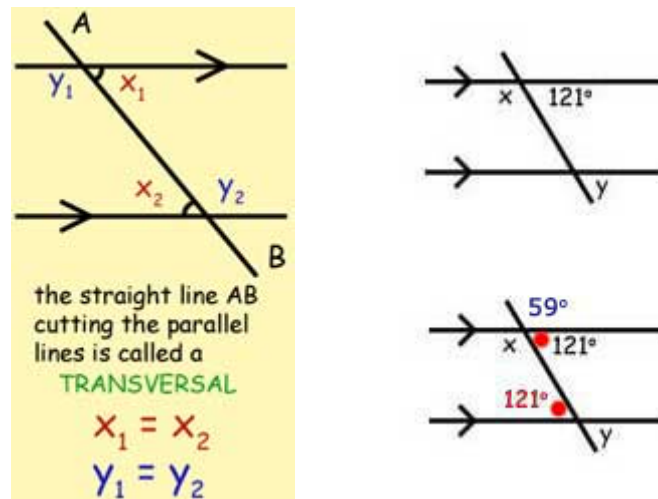
$$2x = 180^\circ - 32^\circ - 82^\circ = 66^\circ$$

$$x = 66^\circ/2 = 33^\circ$$

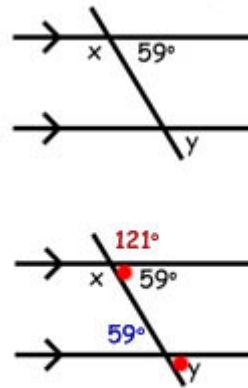
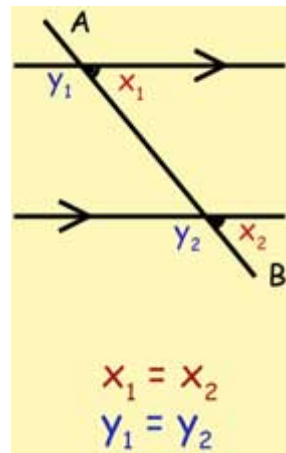
Complementary angles add up to 90 degrees.



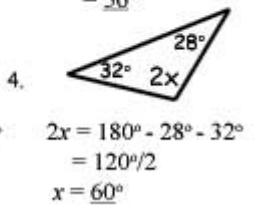
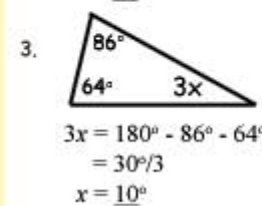
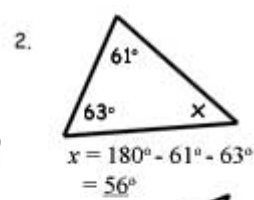
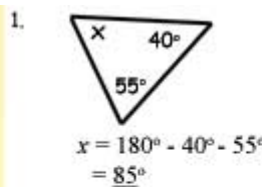
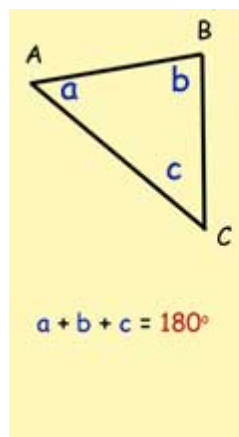
Alternate angles are equal



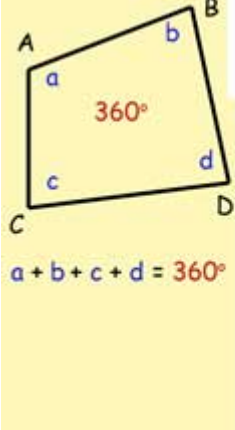
Corresponding angles

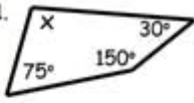


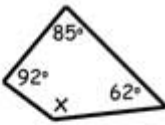
The angles in a triangle add up to 180 degrees.

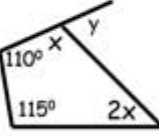


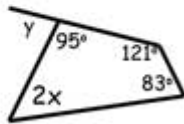
The angles in a quadrilateral add up to 360 degrees.



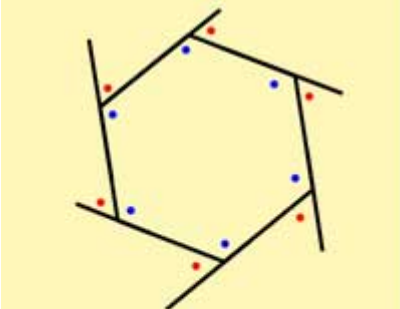
1.  $x = 360^\circ - 150^\circ - 75^\circ - 30^\circ = 105^\circ$

2.  $x = 360^\circ - 92^\circ - 85^\circ - 62^\circ = 121^\circ$

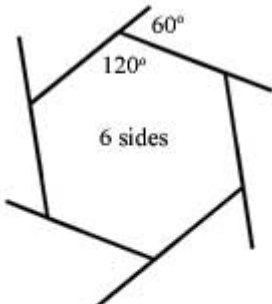
3.  $3x = 360^\circ - 110^\circ - 115^\circ = 135^\circ / 3 = 45^\circ$

4.  $2x = 360^\circ - 95^\circ - 121^\circ - 83^\circ = 61^\circ / 2 = 30.5^\circ$

The angles in polygons



- exterior angle = $\frac{360^\circ}{\text{no. sides}}$
- interior angle = $180^\circ - \text{exterior angle}$



ext. angle = $360^\circ / 6 = 60^\circ$

int. angle = $180^\circ - 60^\circ = 120^\circ$