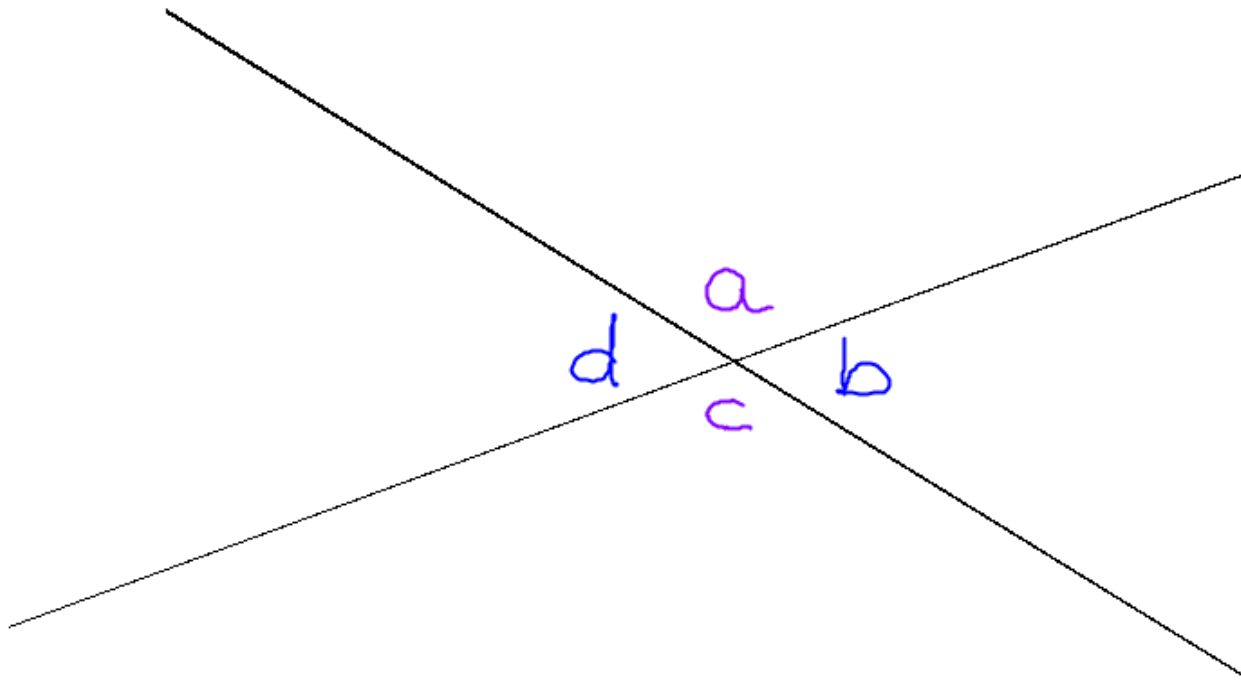


FO20 – Chapter 2

Geometry Background Essentials

1. **Vertically opposite angles**

When two lines or segments intersect (at any angle), two pairs of vertically opposite angles are created:



Relationship: vertically opposite angles are equal

$$\angle a = \angle c$$
$$\angle b = \angle d$$

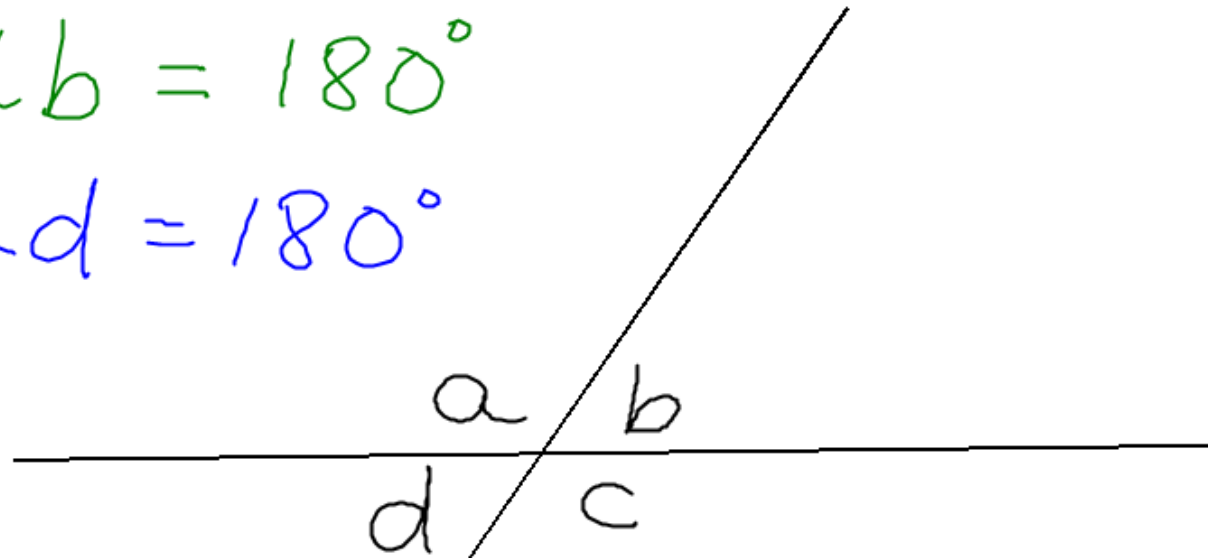
2.

Supplementary angles

Two angles that add up to 180° are supplementary. If a diagram shows two angles that make up a straight line or segment, then those two angles are supplementary.

$$\angle a + \angle b = 180^\circ$$

$$\angle a + \angle d = 180^\circ$$

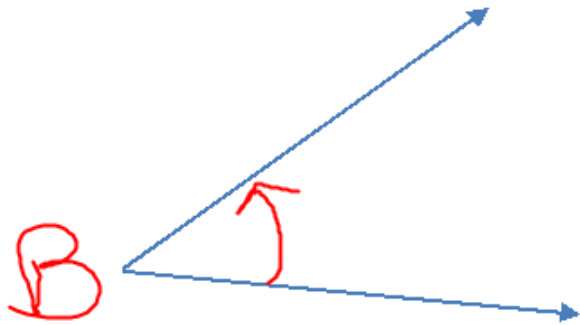


$$\angle c + \angle b = 180^\circ$$

$$\angle c + \angle d = 180^\circ$$

Naming Angles:

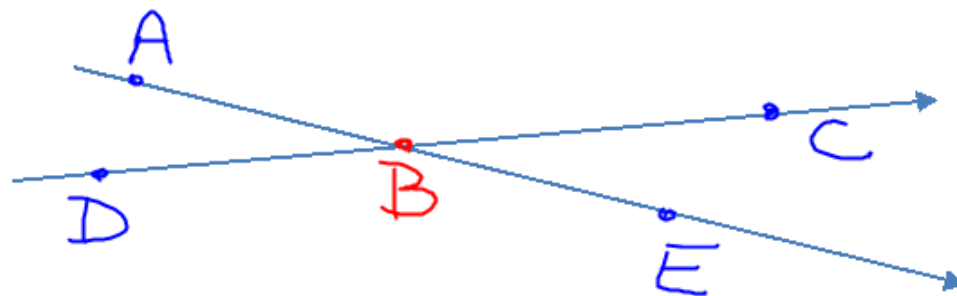
- (1) **Single letter names:** appropriate when only one angle is present in the drawing. The letter name is the vertex of the angle



Angle B \rightarrow $\angle B$

Naming Angles:

- (1) **Three-letter names:** must be used in a situation where more than one angle has the same vertex. The middle letter is the vertex, the others come from the two arms of the angle.



Each of these angles has B as a vertex. Therefore, we cannot call any of them $\angle B$, we must use the three letter naming system:

$\angle ABC$

$\angle CBE$

$\angle ABD$

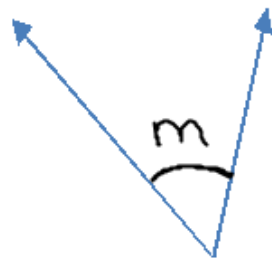
$\angle CBD$

$\angle ABE$

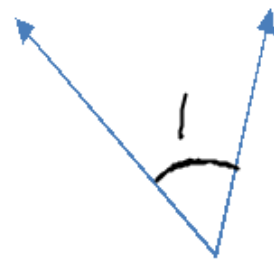
$\angle EBD$

Naming Angles:

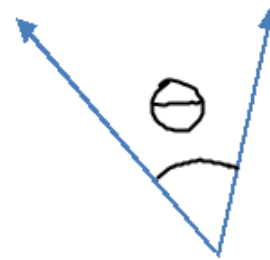
- (3) **With a symbol:** this system is often used in place of the three-letter naming system in more complicated drawings to avoid confusion. The symbol is placed in the area being measured as the angle in question, sometimes with an arc drawn for clarity. Symbols could be lower-case letters, numbers, or other symbols such as Greek letters.



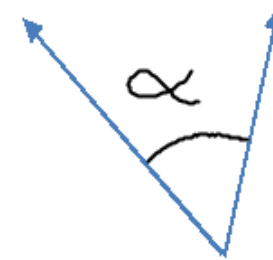
$\angle m$



$\angle 1$



$\angle \theta$



$\angle \alpha$