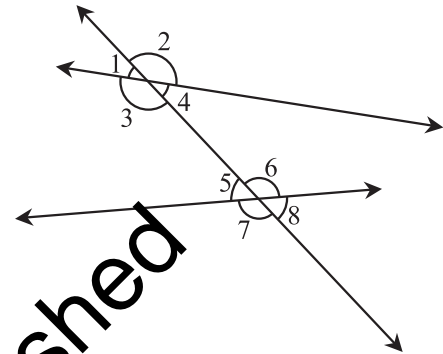


4. (i) When two lines intersect (looking like the letter X) we have two pairs of opposite angles. They are called *vertically opposite angles*. They are equal in measure.
- (ii) A transversal is a line that intersects two or more lines at distinct points.
- (iii) A transversal gives rise to several types of angles.
- (iv) In the figure, we have

Types of Angles	Angles Shown
Interior	$\angle 3, \angle 4, \angle 5, \angle 6$
Exterior	$\angle 1, \angle 2, \angle 7, \angle 8$
Corresponding	$\angle 1$ and $\angle 5, \angle 2$ and $\angle 6,$ $\angle 3$ and $\angle 7, \angle 4$ and $\angle 8$
Alternate interior	$\angle 3$ and $\angle 6, \angle 4$ and $\angle 5$
Alternate exterior	$\angle 1$ and $\angle 8, \angle 2$ and $\angle 7$
Interior, on the same side of transversal	$\angle 3$ and $\angle 5, \angle 4$ and $\angle 6$



- (v) When a transversal cuts two *parallel* lines, we have the following interesting relationships:

Each pair of corresponding angles are equal.

$$\angle 1 = \angle 5, \angle 2 = \angle 6, \angle 3 = \angle 7, \angle 4 = \angle 8$$

Each pair of alternate interior angles are equal.

$$\angle 3 = \angle 6, \angle 4 = \angle 5$$

Each pair of interior angles on the same side of transversal are supplementary.

$$\angle 3 + \angle 5 = 180^\circ, \angle 4 + \angle 6 = 180^\circ$$

