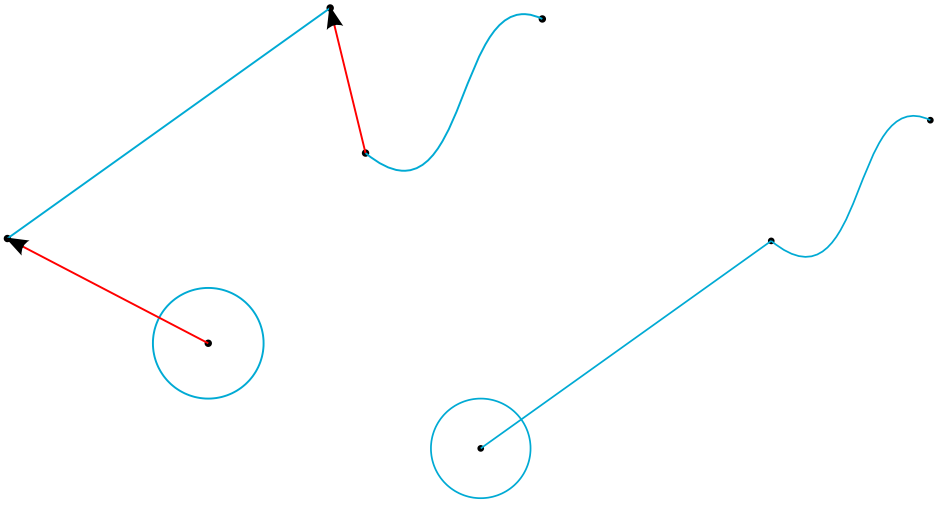
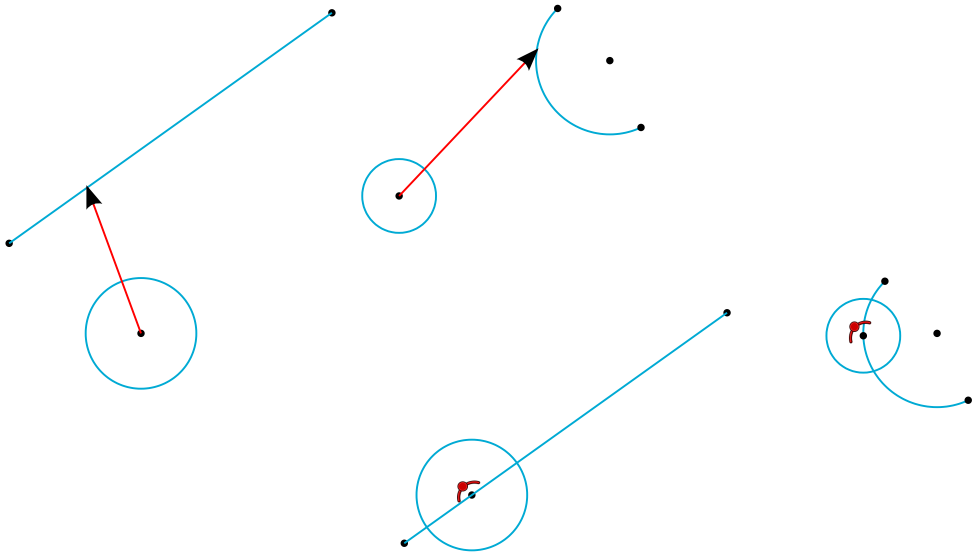
FreeCAD Cheat Sheet: Sketcher Constraints

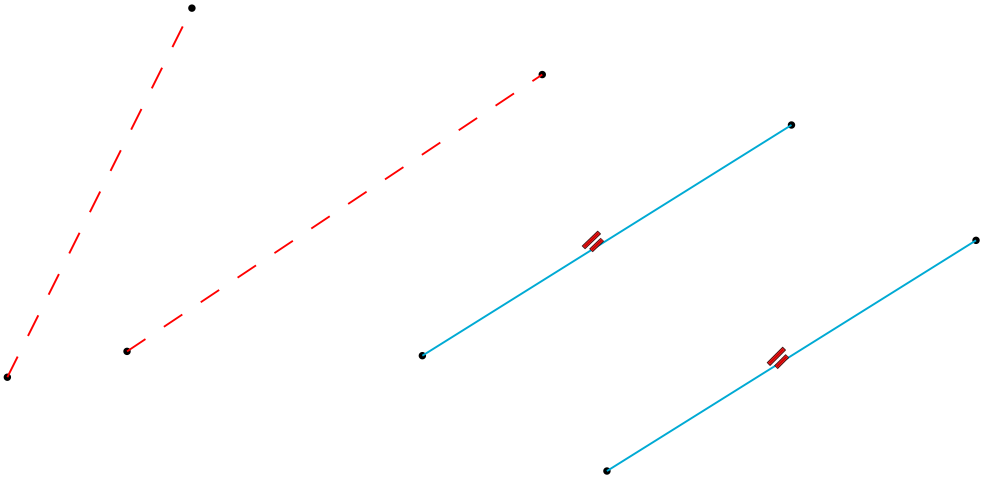
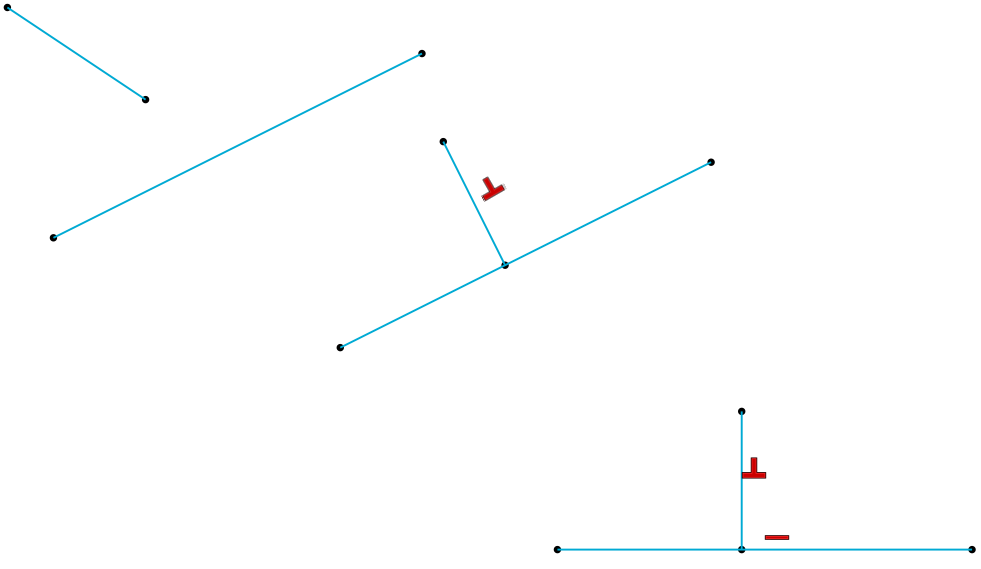
1) Coincident
2) Point on Object
3) Vertical
4) Horizontal
5) Parallel
6) Perpendicular
7) Tangent
8) Equal
9) Symmetric
10) Block
11) Lock
12) Horizontal Distance
13) Vertical Distance
14) Length
15) Radius
16) Diameter
17) Angle

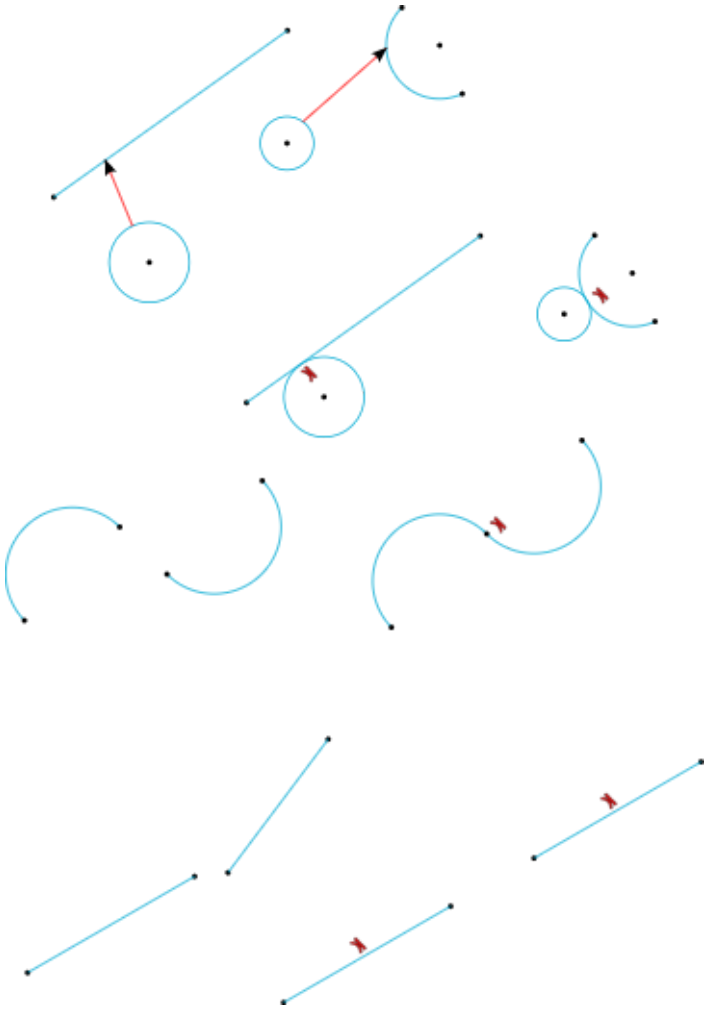
What is a constraint?

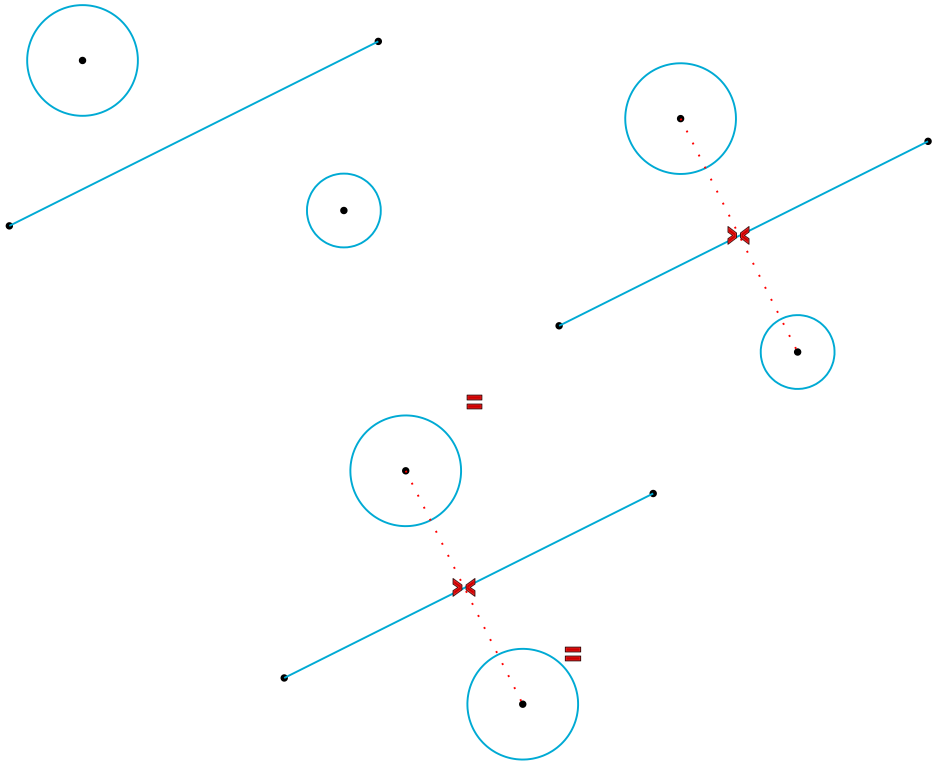
Constraints ensure points or lines with a geometric relationship stay consistent throughout the sketch.

Constraint	Description & Example
	Attach a point to another point. If both points are unconstrained the second point selected will move to the first point selected. 

Constraint	Description & Example
	Attach a point to an line or arc. 
	Ensures this line always stays vertical on this sketch plane.
	Ensures this line always stays horizontal on this sketch plane.

Constraint	Description & Example
	Orients two lines to be parallel. 
	Orients two lines to be perpendicular. Use in conjunction with *Point on Object* to create a T-shape. One line is free to be constrained in another way. 

Constraint	Description & Example
	Attach an arc or ellipse to a line or another arc/ellipse. Can also be used to make two arcs/ellipses share tangency and two lines collinear. 
	Ensures two lines share the same length or an arc or circle share the same radius. If both circles or arcs are unconstrained the second shape will match the first selected shape.

Constraint	Description & Example
	Orients two points to share the same distance from a line. Preselect two points and a line before invoking this command. Use *Equal* to ensure figures mirrored across the line are uniform. Use *Distance* to set the distance from the line of symmetry. 
	Prevents lines from changing slope/angle, length or location.
	Applies a *Distance* consraint to a point relative to the sketch origin. Preselect one point before invoking this command.

Constraint	Description & Example
	Dimensions the length of a horizontal line or distance between two points.
	Dimensions the length of a vertical line or distance between two points.
	Dimensions a line or distance between two points.
	Dimensions the radius of a circle or arc.
	Dimensions the diameter of a circle or arc.
	Dimensions the angle between two lines.