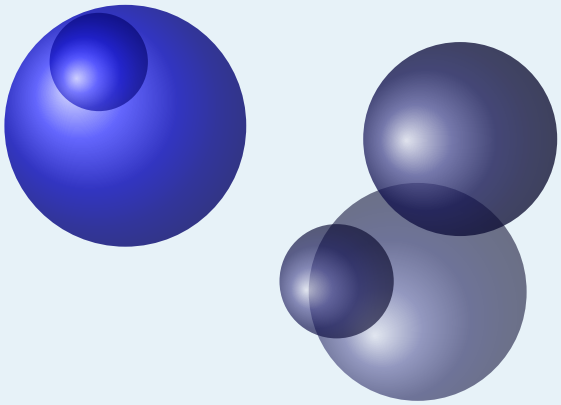
tkz-euclide 5.02c

AlterMundus

Introduction to TKZ-Euclide



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Contents

Part I.

Primitive Geometrical Shapes and Transformation

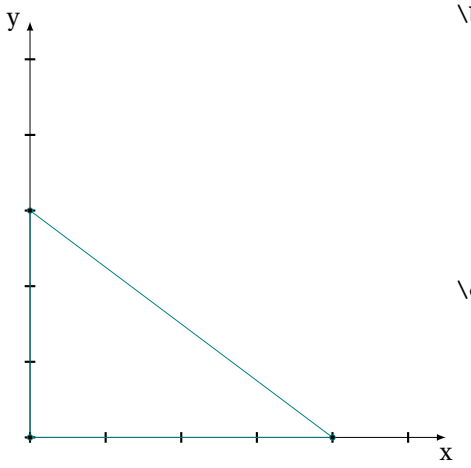
1. Primitives

1.1. Point

There are two macros for points: **\tkzDefPoint** and **\tkzDefPoints**. A point in **tkz-euclide** is a particular "node" for Ti*k*Z.
A point is defined if it has a name linked to a unique pair of decimal numbers. Let (x, y) or (a: d) i.e. (x abscissa, y ordinate) or (a angle: d distance).This is possible because the plan has been provided with an orthonormed Cartesian coordinate system. The working axes are (ortho)normed with unity equal to 1 cm.

1.1.1. Cartesian coordinates

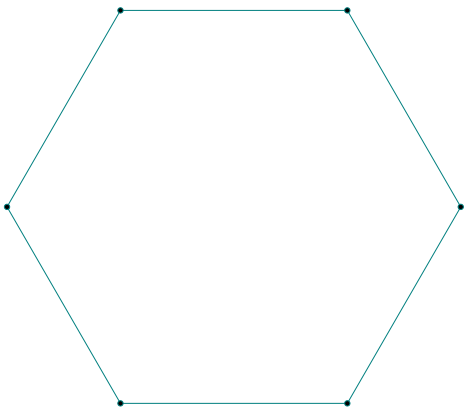
The Cartesian coordinate (a, b) refers to the point a centimeters in the x-direction and b centimeters in the y-direction.




```
\begin{tikzpicture}
    \tkzInit[xmax=5,ymax=5] % limits the size of the axes
    \tkzDrawX[>=latex]
    \tkzDrawY[>=latex]
    \tkzDefPoint(0,0){A}
    \tkzDefPoint(4,0){B}
    \tkzDefPoint(0,3){C}
    \tkzDrawPolygon(A,B,C)
    \tkzDrawPoints(A,B,C)
\end{tikzpicture}
```

1.1.2. Polar coordinates

A point in polar coordinates requires an angle α, in degrees, and a distance d from the origin with a dimensional unit by default it's the cm.



```
\begin{tikzpicture}
    \foreach \an [count=\i] in {0,60,...,300}
        { \tkzDefPoint(\an:3){A_\i}}
    \tkzDrawPolygon(A_1,A_...,A_6)
    \tkzDrawPoints(A_1,A_...,A_6)
\end{tikzpicture}
```

1.1.3. Named point

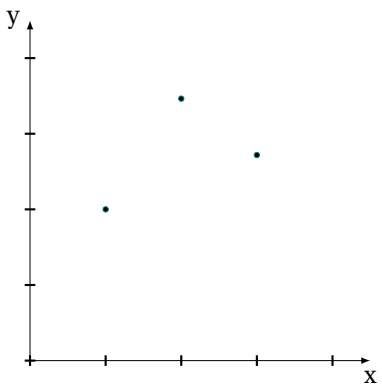
\tkzDefPoint[⟨local options⟩](⟨x,y⟩){⟨ref⟩} or (⟨α:d⟩){⟨ref⟩}

arguments	default	definition
(x,y)	no default	x and y are two dimensions, by default in cm.
(α:d)	no default	α is an angle in degrees, d is a dimension
{ref}	no default	Reference assigned to the point: A, T_a ,P1 or P_1

The obligatory arguments of this macro are two dimensions expressed with decimals, in the first case they are two measures of length, in the second case they are a measure of length and the measure of an angle in degrees. Do not confuse the reference with the name of a point. The reference is used by calculations, but frequently, the name is identical to the reference.

options	default	definition
label	no default	allows you to place a label at a predefined distance
shift	no default	adds (x,y) or (α:d) to all coordinates

Calculations with xfp:




```
\begin{tikzpicture}[scale=1]
    \tkzInit[xmax=4,ymax=4]
    \tkzDrawX\tkzDrawY
    \tkzDefPoint(-1+2,sqrt(4)){O}
    \tkzDefPoint({3*ln(exp(1))},{exp(1)}){A}
    \tkzDefPoint({4*sin(pi/6)},{4*cos(pi/6)}){B}
    \tkzDrawPoints(O,B,A)
\end{tikzpicture}
```

1.1.4. Relative point: \tkzDefShiftPoint

\tkzDefShiftPoint[⟨Point⟩](⟨x,y⟩){⟨ref⟩} or (⟨α:d⟩){⟨ref⟩}

arguments	default	definition
(x,y)	no default	x and y are two dimensions, by default in cm.
(α:d)	no default	α is an angle in degrees, d is a dimension
{ref}	no default	Reference assigned to the point: A, T_a ,P1 or P_1

options	default	definition
[pt]	no default	\tkzDefShiftPoint[A](0:4){B}

1.1.5. Definition of multiple points: \tkzDefPoints

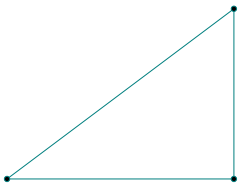
\tkzDefPoints[⟨local options⟩]{⟨x_1/y_1/n_1,x_2/y_2/r_2, ...⟩}

x_i and y_i are the coordinates of a referenced point r_i

arguments	default	example
x_i/y_i/r_i		\tkzDefPoints{0/0/O,2/2/A}

options	default	definition
shift	no default	Adds (x,y) or (α:d) to all coordinates

1.2. Create a triangle



```
\begin{tikzpicture}[scale=.75]
    \tkzDefPoints{0/0/A,4/0/B,4/3/C}
    \tkzDrawPolygon(A,B,C)
    \tkzDrawPoints(A,B,C)
\end{tikzpicture}
```

Part II.

Drawing