Geometría Euclidiana con LaTeX

Creando Diagramas Profesionales con tkz-euclide

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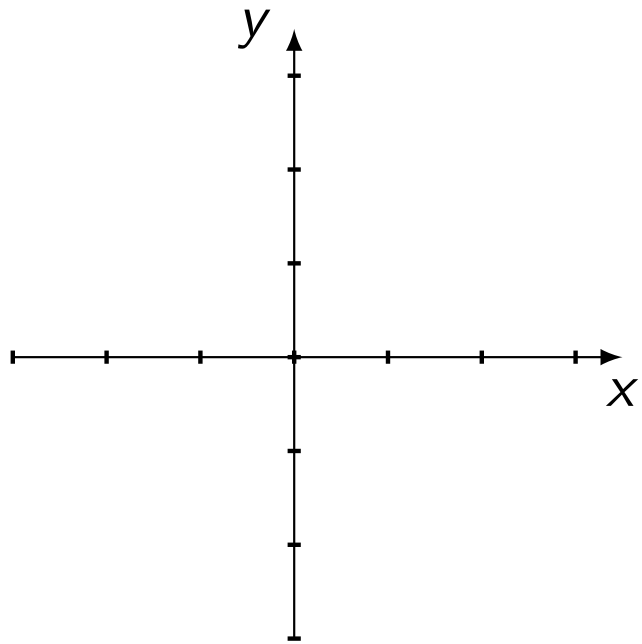
6 de septiembre de 2025

Tabla de Contenidos

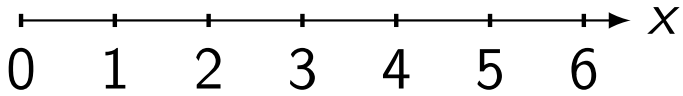
EJEMPLO 1

```
\begin{tikzpicture}
    \tkzInit[xmin=-3,
             ymin=-3,
             xmax=3,
             ymax=3]
    \tkzDrawXY
\end{tikzpicture}
```



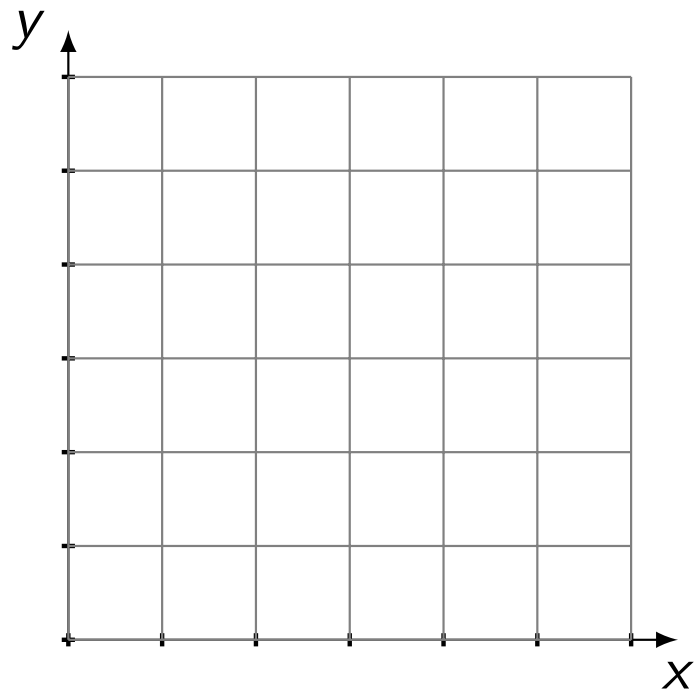
EJEMPLO 2

```
\begin{tikzpicture}
    \tkzInit[xmin=0,xmax=6]
    \tkzDrawX[right=2pt]
    \tkzLabelX
\end{tikzpicture}
```



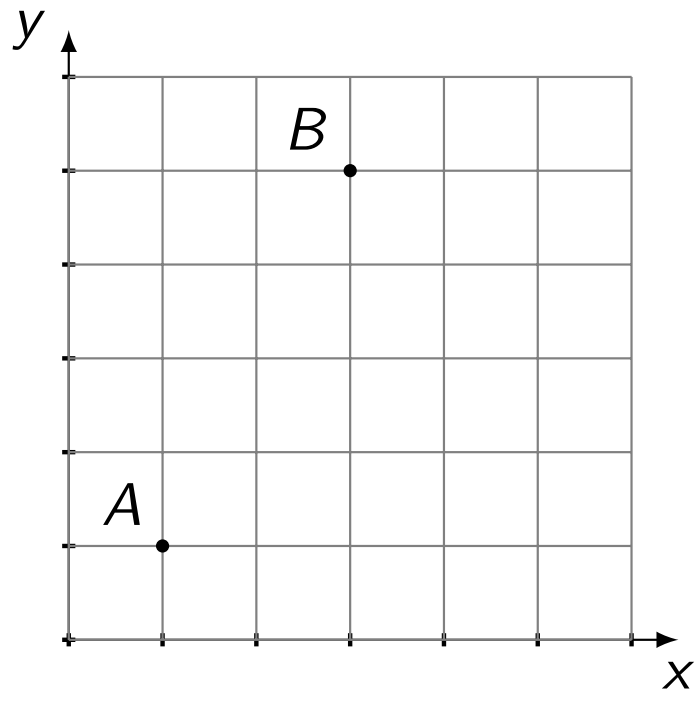
EJEMPLO 3

```
\begin{tikzpicture}
    \tkzInit[xmin=0,
             ymin=0,
             xmax=6,
             ymax=6]
    \tkzDrawXY
    \tkzGrid
\end{tikzpicture}
```



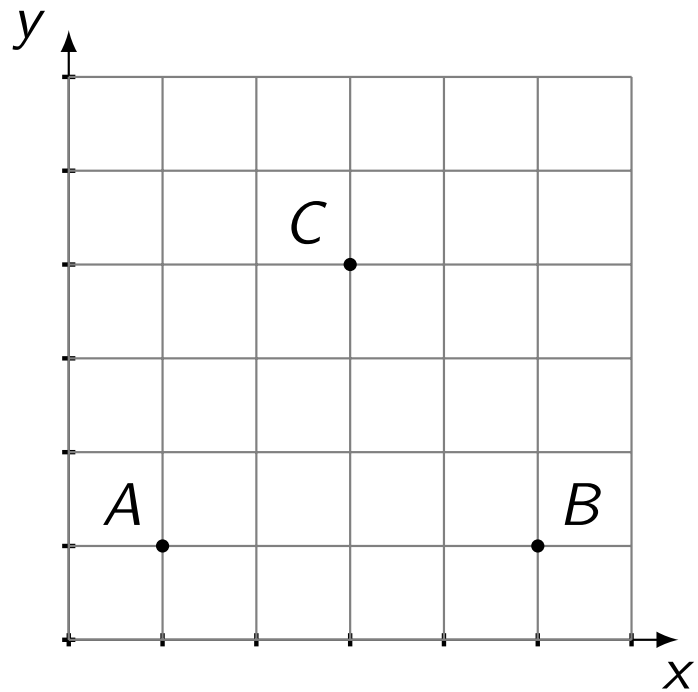
EJEMPLO 4

```
\tkzDefPoint(1,1){A}
\tkzDefPoint(3,5){B}
\tkzDrawPoints(A,B)
\tkzLabelPoints[above left](A,B)
```



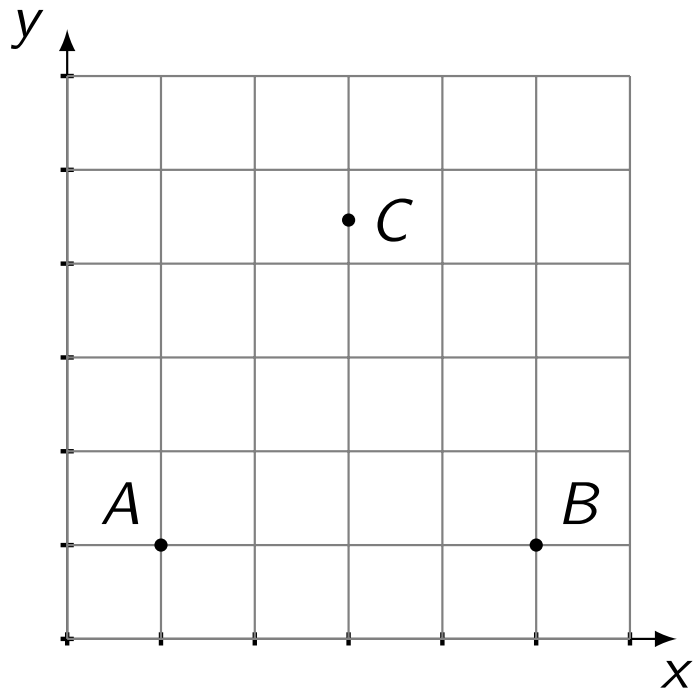
EJEMPLO 5

```
\tkzDefPoints{
     1/1/A,
     5/1/B,
     3/4/C}
\tkzDrawPoints(A,B,C)
\tkzLabelPoints[above left](A,C)
\tkzLabelPoints[above right](B)
```



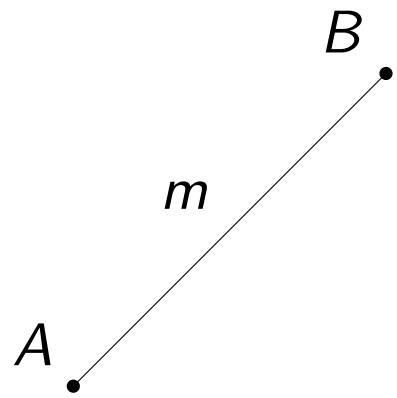
EJEMPLO 6

```
\tkzDefPoint(1,1){A}
\tkzDefPoint(5,1){B}
\tkzDefShiftPoint[A](60:4){C}
\tkzDrawPoints(A,B,C)

\tkzLabelPoints[above left](A)
\tkzLabelPoints[above right](B)
\tkzLabelPoints[right](C)
```



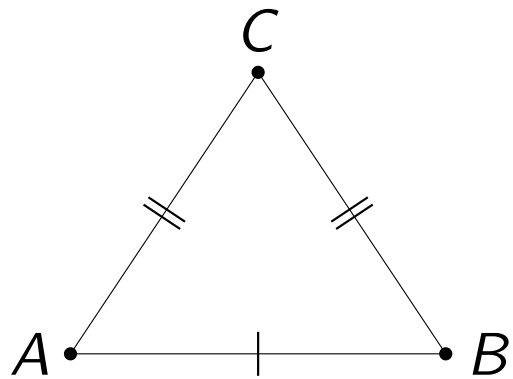
EJEMPLO 7

```
\tkzDefPoint(2,1){A}
\tkzDefPoint(4,3){B}
\tkzDrawPoints(A,B)
\tkzLabelPoints[above left](A,B)
\tkzDrawSegment(A,B)
\tkzLabelSegment[above left](A,B){$m$}
```



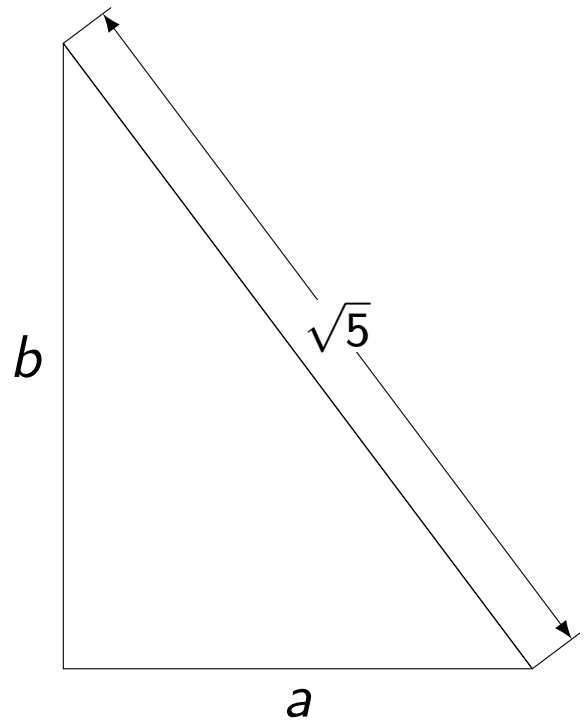
EJEMPLO 8

```
\tkzDefPoints{
    1/1/A,
    5/1/B,
    3/4/C}

\tkzDrawPoints(A,B,C)
\tkzDrawSegments(A,B B,C C,A)

\tkzMarkSegment[mark=|](A,B)
\tkzMarkSegment[mark=||](A,C)
\tkzMarkSegment[mark=||](B,C)
```



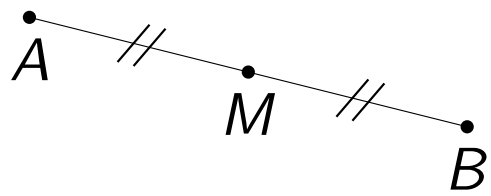
EJEMPLO 9

```
\tkzDefPoints{
     0/0/A,
     3/0/B,
     0/4/C}

\tkzDrawSegments(A,B B,C C,A)

\tkzLabelSegment(A,B){$a$}
\tkzLabelSegment[left](A,C){$b$}

\tkzDrawSegment
     [dim={$\sqrt{5}$,9pt,}](C,B)
```



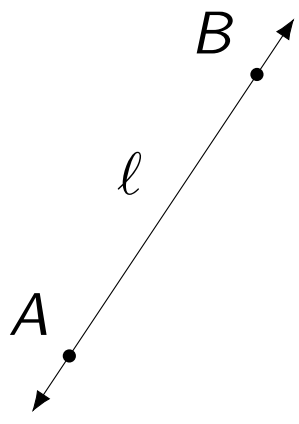
EJEMPLO 10

```
\tkzDefPoint(2,3){A}
\tkzDefPoint(6,2){B}

\tkzDefMidPoint(A,B)
   \tkzGetPoint{M}

\tkzDrawSegment(A,B)
\tkzMarkSegments[mark=s||](A,M M,B)
\tkzDrawPoints(A,B,M)
\tkzLabelPoints[below](A,B,M)
```



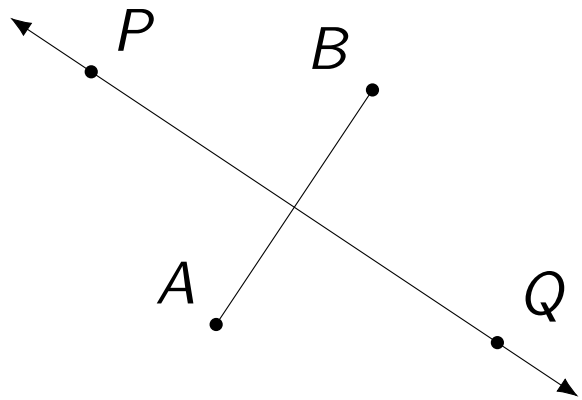
EJEMPLO 11

```
\tkzDefPoint(2,1){A}
\tkzDefPoint(3,4){B}
\tkzDrawPoints(A,B)
\tkzLabelPoints[above left](A,B)
\tkzDrawLine[Latex-Latex](A,B)
\tkzLabelLine[above left](A,B){$\ell$}
```



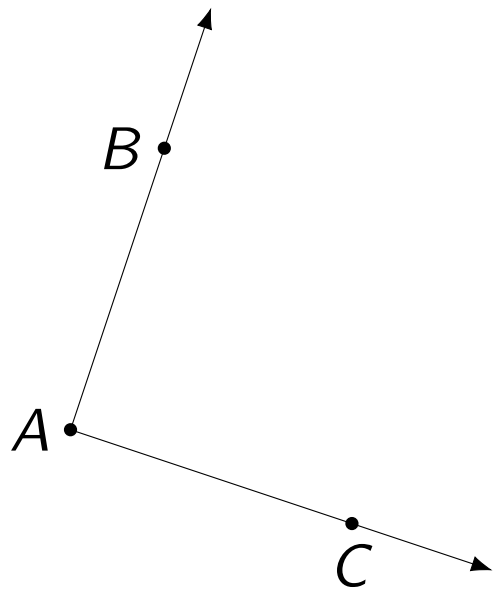
EJEMPLO 12

```
\tkzDefPoint(1,1){A}
\tkzDefPoint(3,4){B}

\tkzDrawSegment(A,B)

\tkzDefLine[mediator](A,B)
    \tkzGetPoints{P}{Q}
\tkzDrawLine[Latex-Latex](P,Q)
```



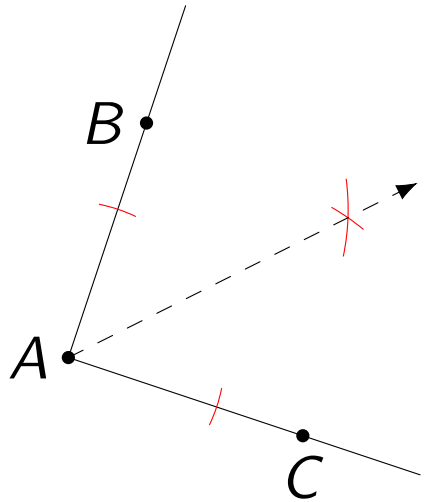
EJEMPLO 13

```
\tkzDefPoints{
    2/1/A,
    3/4/B,
    5/0/C%
}
\tkzDrawPoints(A,B,C)

\tkzLabelPoints[left](A,B)
\tkzLabelPoints[below](C)

\tkzDrawLines[-Latex,add=0 and .5](A,B A,C)
```



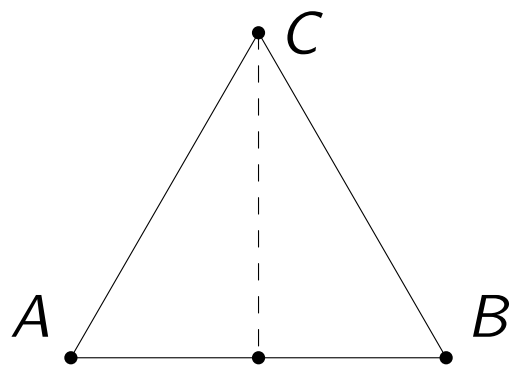
EJEMPLO 14

```
\tkzDefPoints{
    2/1/A,
    3/4/B,
    5/0/C}

\tkzDrawPoints(A,B,C)
\tkzDrawLines[add=0 and .5](A,B A,C)

\tkzDefLine[bisector](B,A,C)
    \tkzGetPoint{a}

\tkzShowLine[bisector,gap=4,size=2,color=red](B,A,C)
\tkzDrawLine[-Latex,dashed,add=0 and 4](A,a)
```



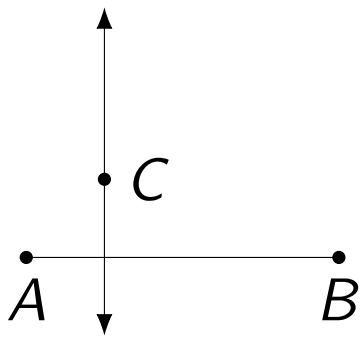
EJEMPLO 15

```
\tkzDefPoint(1,1){A}
\tkzDefPoint(5,1){B}
\tkzDefShiftPoint[A](60:4){C}

\tkzDrawSegments(A,B B,C C,A)
\tkzDefLine[altitude](A,C,B)
    \tkzGetPoint{c}

\tkzDrawSegment[dashed](C,c)
\tkzDrawPoints(A,B,C,c)
```



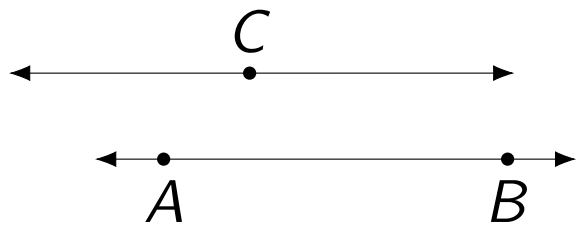
EJEMPLO 16

```
\tkzDefPoints{
    0/0/A,
    4/0/B,
    1/1/C%
}
\tkzDrawSegment(A,B)
\tkzDefLine[perpendicular=through
 ↪  C](A,B)
    \tkzGetPoint{c}

\tkzDrawLine[Latex-Latex,add=1 and
 ↪  0.1](C,c)

\tkzDrawPoints(A,B,C)
```



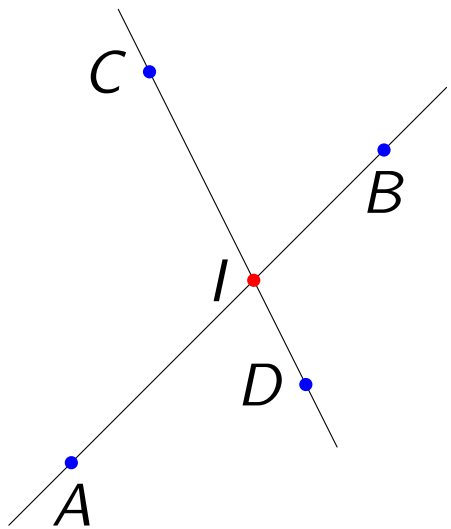
EJEMPLO 17

```
\tkzDefPoints{
    0/0/A,
    4/0/B,
    1/1/C%
}
\tkzDrawLine[Latex-Latex](A,B)
\tkzDefLine[parallel=through C](A,B)
    \tkzGetPoint{c}
\tkzDrawLine[Latex-Latex,add=1 and
↪   0.1](C,c)

\tkzDrawPoints(A,B,C)
```



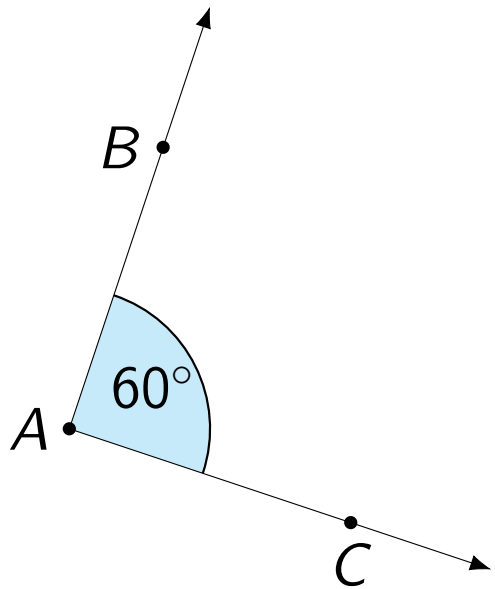
EJEMPLO 18

```
\tkzDefPoint(2,1){A}
\tkzDefPoint(6,5){B}
\tkzDefPoint(3,6){C}
\tkzDefPoint(5,2){D}
\tkzDrawLines(A,B C,D)
\tkzInterLL(A,B)(C,D)
  \tkzGetPoint{I}
\tkzDrawPoints[color=blue](A,B,C,D)
\tkzDrawPoint[color=red](I)
```



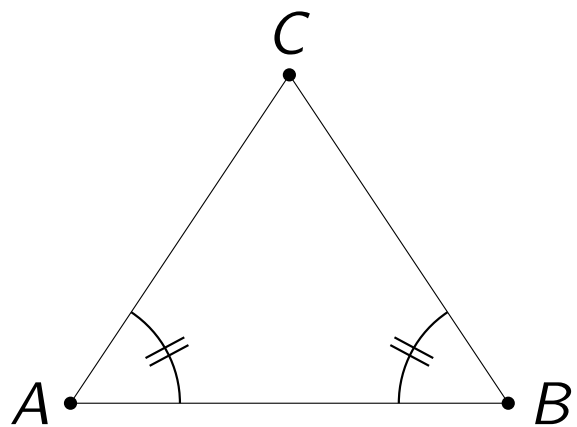
EJEMPLO 19

```
\tkzDefPoints{
    2/1/A,
    3/4/B,
    5/0/C%
}

\tkzFillAngle[size=1.5,cyan!20](C,A,B)
\tkzMarkAngle[size=1.5](C,A,B)
\tkzLabelAngle(C,A,B){$60^{\circ}$}

\tkzDrawPoints(A,B,C)
\tkzDrawLines[-Latex,add=0 and .5](A,B
 ↪   A,C)
```



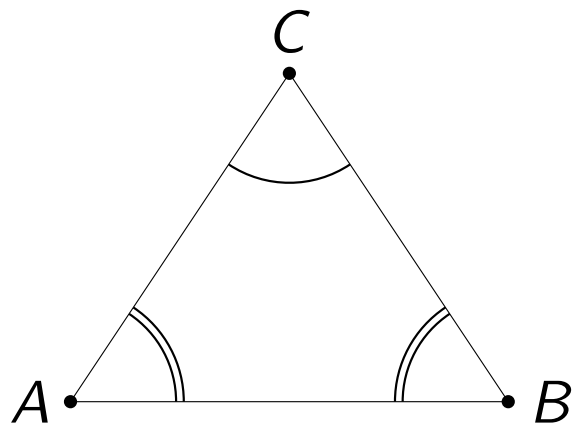
EJEMPLO 20

```
\tkzDefPoints{
    1/1/A,
    5/1/B,
    3/4/C}
\tkzDrawPoints(A,B,C)
\tkzDrawSegments(A,B B,C C,A)

\tkzMarkAngle[mark=||](B,A,C)
\tkzMarkAngle[mark=||](C,B,A)
```



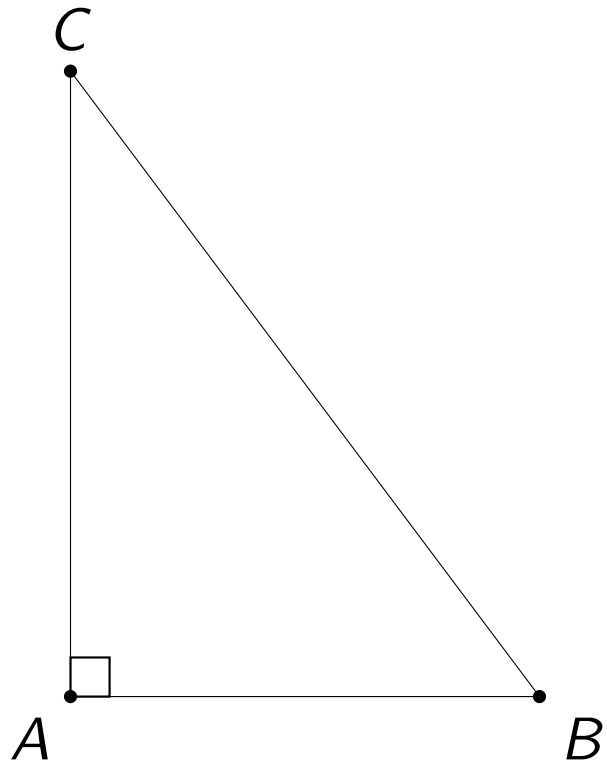
EJEMPLO 21

```
\tkzDefPoints{
    1/1/A,
    5/1/B,
    3/4/C}
\tkzDrawPoints(A,B,C)
\tkzDrawSegments(A,B B,C C,A)

\tkzMarkAngle[arc=ll](B,A,C)
\tkzMarkAngle[arc=ll](C,B,A)
\tkzMarkAngle[arc=l](A,C,B)
```



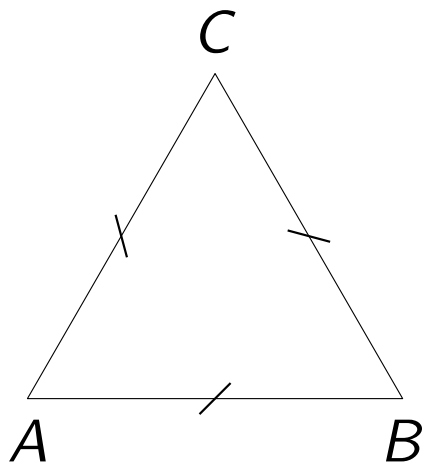
EJEMPLO 22

```
\tkzDefPoints{
    0/0/A,
    3/0/B,
    0/4/C}

\tkzDrawSegments(A,B B,C C,A)
\tkzMarkRightAngle(B,A,C)
```



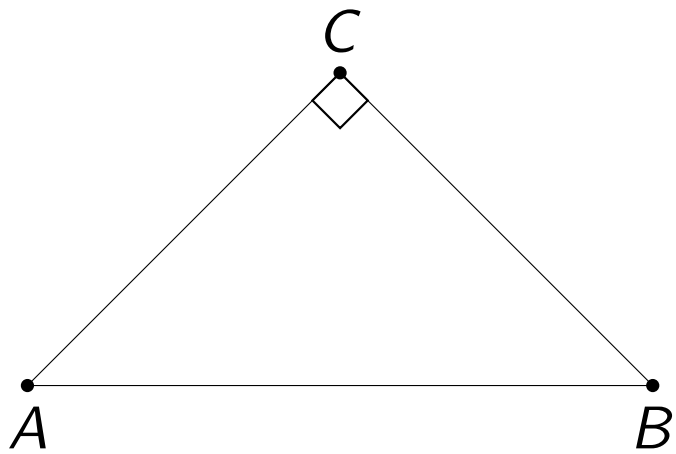
EJEMPLO 23

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(4,0){B}

\tkzDefTriangle[equilateral](A,B)
    \tkzGetPoint{C}

\tkzDrawPolygons(A,B,C)
\tkzMarkSegments[mark=s|](A,B
↪   B,C C,A)
```



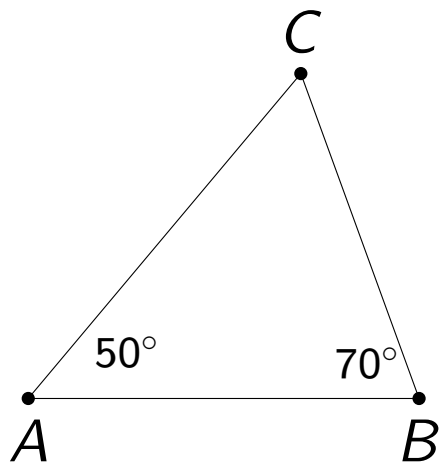
EJEMPLO 24

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(4,0){B}

\tkzDefTriangle[isosceles
 ↪  right](A,B)
    \tkzGetPoint{C}

\tkzDrawPolygons(A,B,C)
\tkzDrawPoints(A,B,C)
\tkzMarkRightAngles(A,C,B)
```



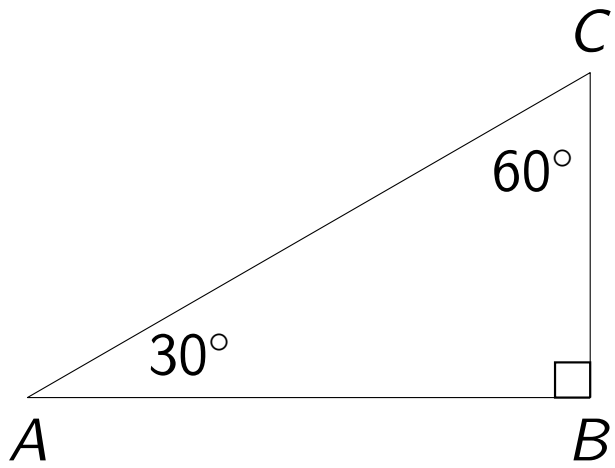
EJEMPLO 25

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(5,0){B}
\tkzDefTriangle[two angles = 50 and
 ↪  70](A,B)
    \tkzGetPoint{C}

\tkzDrawPoints(A,B,C)
\tkzDrawPolygon(A,B,C)

\tkzLabelAngle(B,A,C){$50^\circ$}
\tkzLabelAngle(C,B,A){$70^\circ$}
```



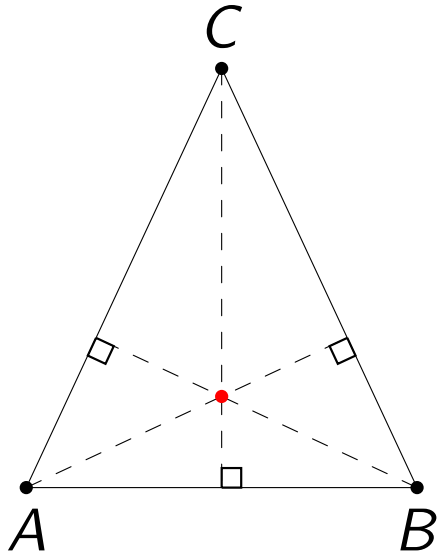
EJEMPLO 26

```
\tkzDefPoints{0/0/A,4/0/B}
\tkzDefTriangle[school](A,B)
    \tkzGetPoint{C}

\tkzMarkRightAngles(C,B,A)
\tkzLabelAngle(B,A,C){$30^\circ$}
\tkzLabelAngle(A,C,B){$60^\circ$}

\tkzDrawPolygon(A,B,C)
```



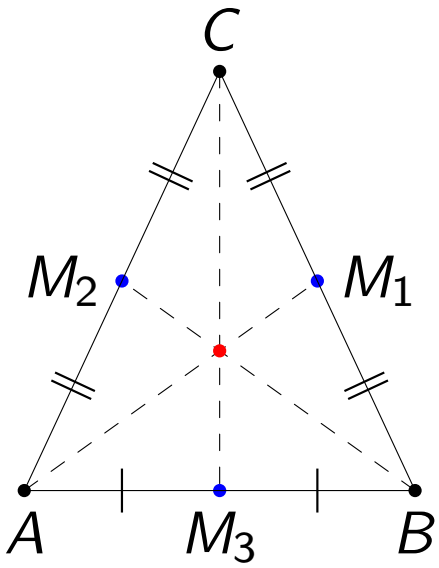
EJEMPLO 27

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(5,0){B}
\tkzDefTriangle[two angles = 65 and
↪  65](A,B)
    \tkzGetPoint{C}

\tkzDefTriangleCenter[ortho](A,B,C)
    \tkzGetPoint{O}

\tkzDrawPoints(A,B,C,O)
\tkzDrawPolygon(A,B,C)
```



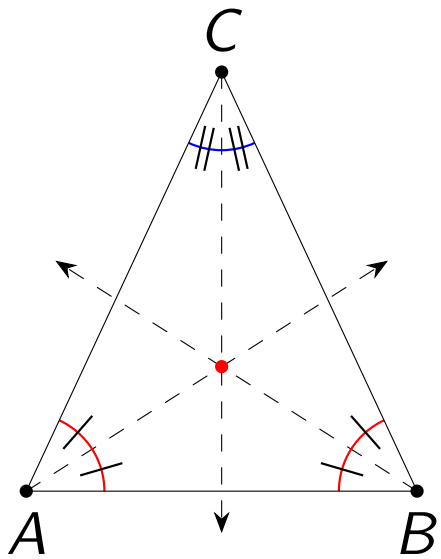
EJEMPLO 28

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(5,0){B}
\tkzDefTriangle[two angles = 65 and
↪   65](A,B)
    \tkzGetPoint{C}

\tkzDefTriangleCenter[median](A,B,C)
    \tkzGetPoint{O}

\tkzDrawPoints[red](O)
\tkzDrawPoints(A,B,C)
\tkzDrawPolygon(A,B,C)
```



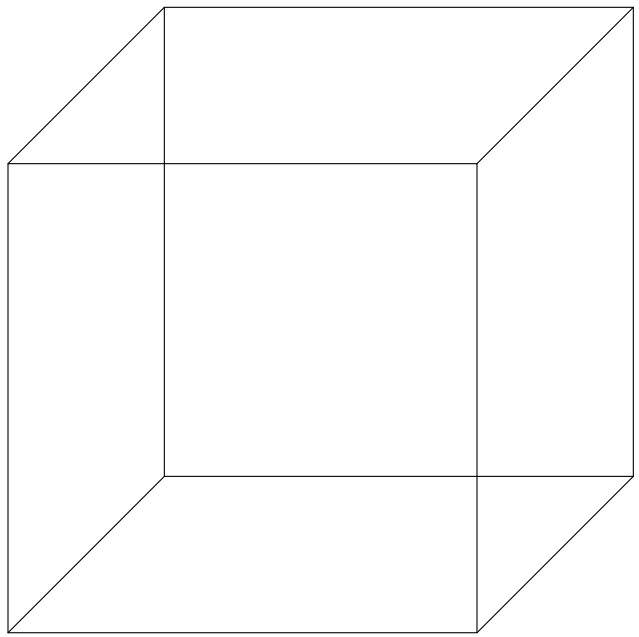
EJEMPLO 29

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(5,0){B}
\tkzDefTriangle[two angles = 65 and
↪   65](A,B)
    \tkzGetPoint{C}

\tkzDefTriangleCenter[in](A,B,C)
    \tkzGetPoint{O}

\tkzDrawPoints[red](O)
\tkzDrawPoints(A,B,C)
\tkzDrawPolygon(A,B,C)
```



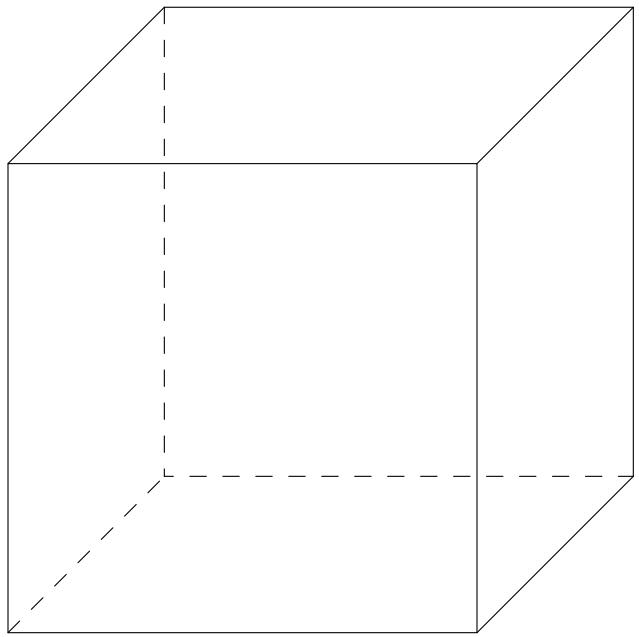
EJEMPLO 30

```
\tkzDefPoints{
    0/0/A1,3/0/B1,3/3/C1,0/3/D1,
    1/1/A2,4/1/B2,4/4/C2,1/4/D2}

\tkzDrawPolygon(A1,B1,C1,D1)
\tkzDrawPolygon(A2,B2,C2,D2)

\tkzDrawSegment(A1,A2)
\tkzDrawSegment(B1,B2)
\tkzDrawSegment(C1,C2)
\tkzDrawSegment(D1,D2)
```



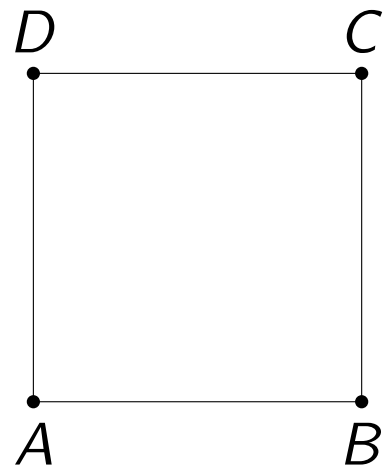
EJEMPLO 31

```
\tkzDefPoints{
    0/0/A1,3/0/B1,3/3/C1,0/3/D2,
    1/1/A2,4/1/B2,4/4/C2,1/4/D2}

\tkzDrawPolygon(A1,B1,C1,D1)
\tkzDrawPolySeg(B2,C2,D2)

\tkzDrawPolySeg[dashed](D2,A2,B2)
\tkzDrawSegment[dashed](A1,A2)

\tkzDrawSegment(B1,B2)
\tkzDrawSegment(C1,C2)
\tkzDrawSegment(D1,D2)
```



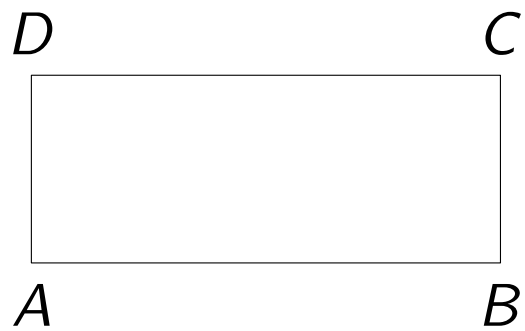
EJEMPLO 32

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(3,0){B}

\tkzDefSquare(A,B)
    \tkzGetPoints{C}{D}

\tkzDrawPolygon(A,B,C,D)
\tkzDrawPoints(A,B,C,D)
\tkzLabelPoints[below](A,B)
\tkzLabelPoints[above](C,D)
```



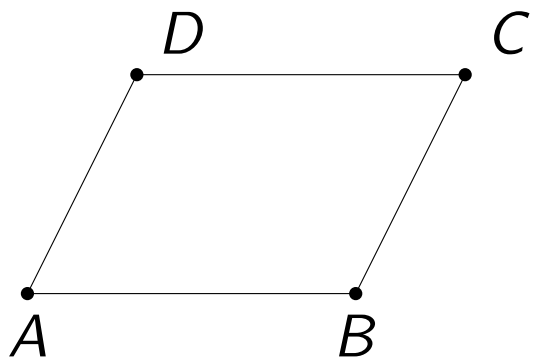
EJEMPLO 33

```
\tkzDefPoints{0/0/A,5/2/C}

\tkzDefRectangle(A,C)
    \tkzGetPoints{B}{D}

\tkzDrawPolygon(A,...,D)

\tkzLabelPoints[below](A,B)
\tkzLabelPoints[above](C,D)
```



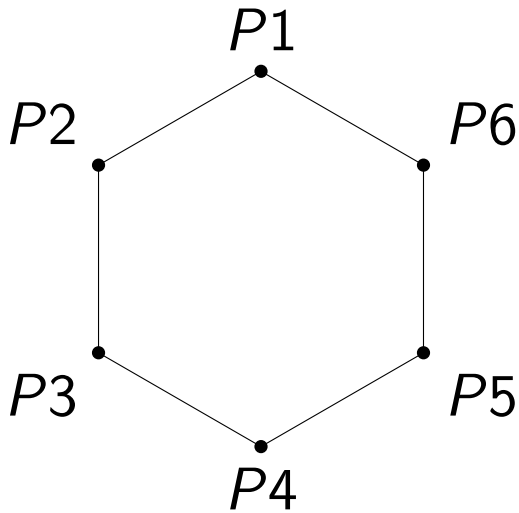
EJEMPLO 34

```
\tkzDefPoints{0/0/A,3/0/B,4/2/C}

\tkzDefParallelogram(A,B,C)
    \tkzGetPoint{D}

\tkzDrawPolygon(A,...,D)
\tkzDrawPoints(A,...,D)
```



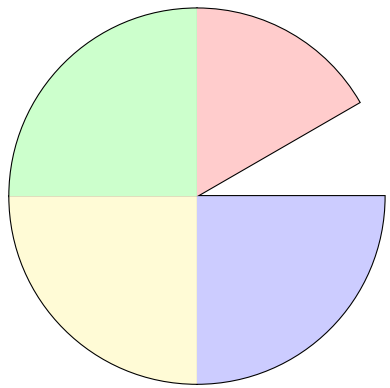
EJEMPLO 35

```
\tkzDefPoints{0/0/O,0/3/P1}
\tkzDefRegPolygon[center,sides=6](O,P1)
\tkzDrawPoints(P1,P...,P6)
\tkzDrawPolygon(P1,P...,P6)
```



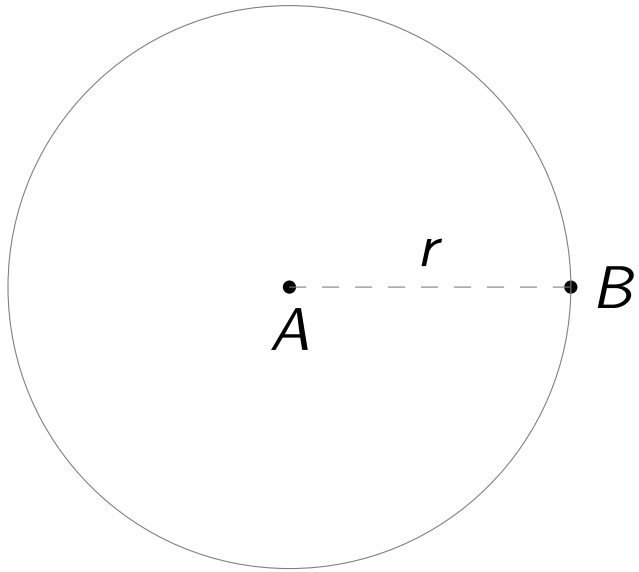
EJEMPLO 36

```
\tkzDefPoint(0,0){O}
\tkzDefPoint[shift={(0,0)}](30:2){A}

\tkzDrawSector[R](O,2)(30,90)
\tkzDrawSector[R](O,2)(90,180)
\tkzDrawSector[R](O,2)(180,270)
\tkzDrawSector[R](O,2)(270,360)
```



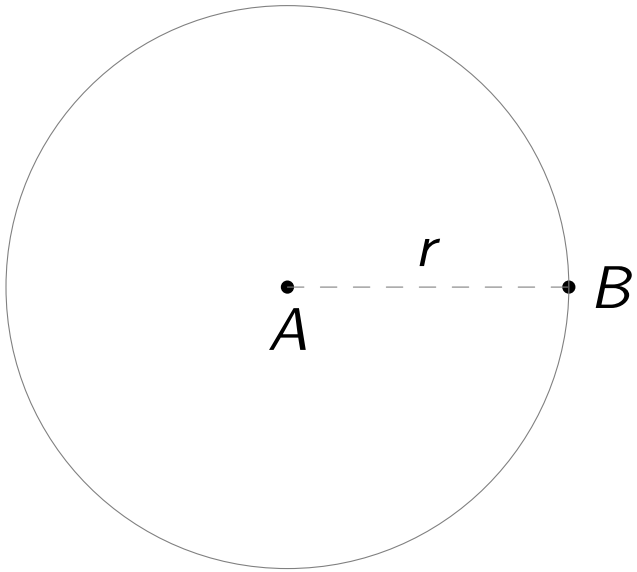
EJEMPLO 37

```
\tkzDefPoints{
    0/0/A,
    3/0/B%
}
\tkzDrawPoints(A,B)

\tkzDrawCircle(A,B)
\tkzDrawSegment[dashed,gray](A,B)
\tkzLabelSegment[above](A,B){$r$}
```



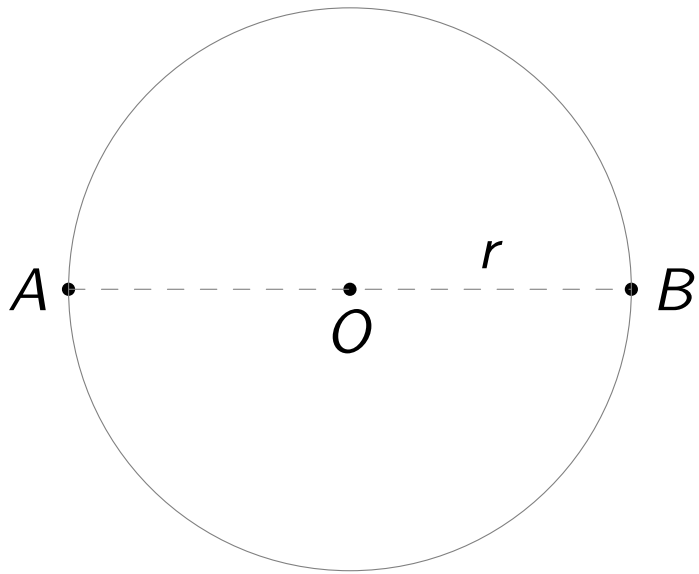
EJEMPLO 38

```
\tkzDefPoint(0,0){A}
\def \r{3}
\tkzDefCircle[R](A,\r)
    \tkzGetSecondPoint{B}

\tkzDrawPoints(A,B)
\tkzDrawCircle(A,B)
\tkzDrawSegment[dashed,gray](A,B)
\tkzLabelSegment[above](A,B){$r$}
```



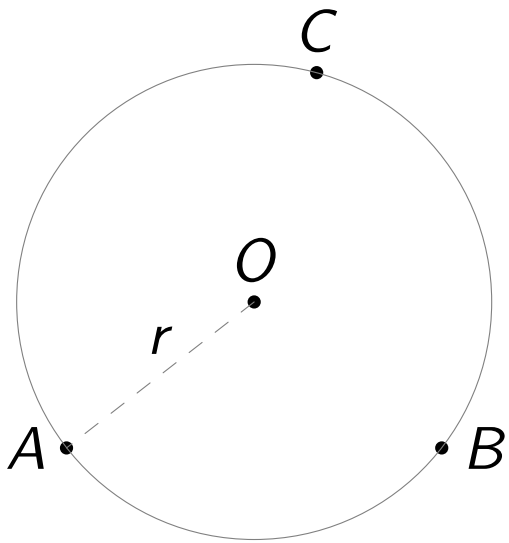
EJEMPLO 39

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(6,0){B}

\tkzDefCircle[diameter](A,B)
    \tkzGetFirstPoint{O}

\tkzDrawPoints(A,B,O)
\tkzDrawCircle(O,B)
\tkzDrawSegment[dashed,gray](A,B)
\tkzLabelSegment[above](O,B){$r$}
```



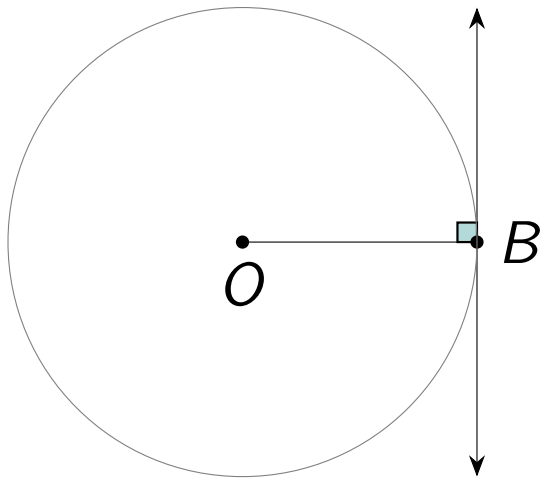
EJEMPLO 40

```
\tkzDefPoints{
    0/0/A,
    3/0/B,
    2/3/C%
}
\tkzDrawPoints(A,B,C,O)

\tkzDefCircle[circum](A,B,C)
    \tkzGetFirstPoint{O}

\tkzDrawCircle(O,A)
\tkzDrawSegment[dashed,gray](O,A)
\tkzLabelSegment[above](O,A){$r$}
```



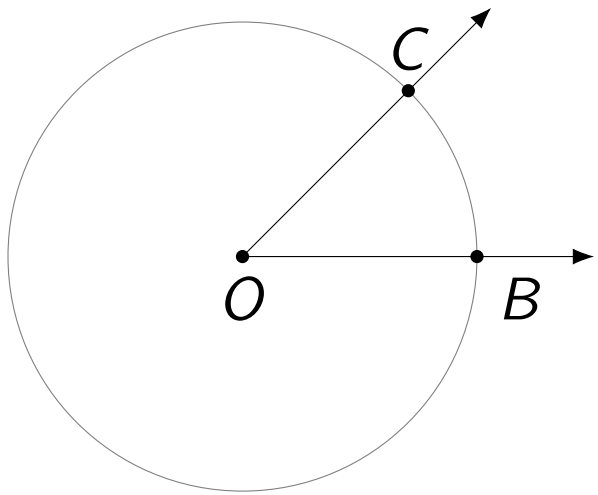
EJEMPLO 41

```
\tkzDefPoints{0/0/A, 6/0/B}

\tkzDefCircle[diameter](A,B)
    \tkzGetFirstPoint{O}

\tkzDefLine[tangent at=B](O)
    \tkzGetPoint{C}

\tkzDrawLine[Stealth-Stealth,add
 ↪   = 3 and 2](B,C)
\tkzDrawSegment(O,B)
\tkzMarkRightAngle[fill=teal!30](O,B,C)

\tkzDrawPoints(O,B)
\tkzDrawCircle(O,B)
```



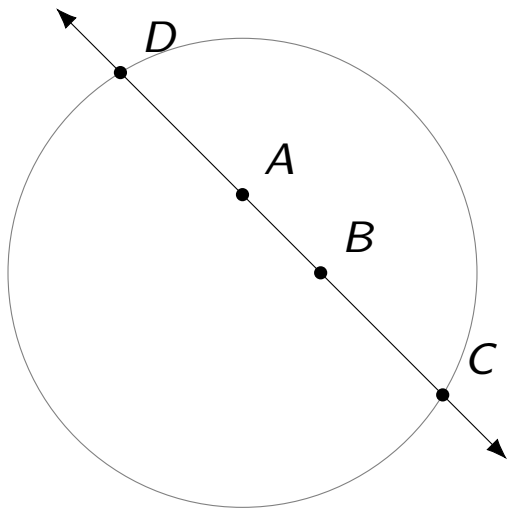
EJEMPLO 42

```
\tkzDefPoints{0/0/A, 6/0/B}

\tkzDefCircle[diameter](A,B)
    \tkzGetFirstPoint{O}
\tkzDefPointOnCircle[through=center
 ↪  O angle 45 point B]
    \tkzGetPoint{C}

\tkzDrawCircle(O,B)

\tkzDrawSegments[add=0 and
 ↪  0.5,-Latex](O,B)
\tkzDrawSegments[add=0 and
 ↪  0.5,-Latex](O,C)
```



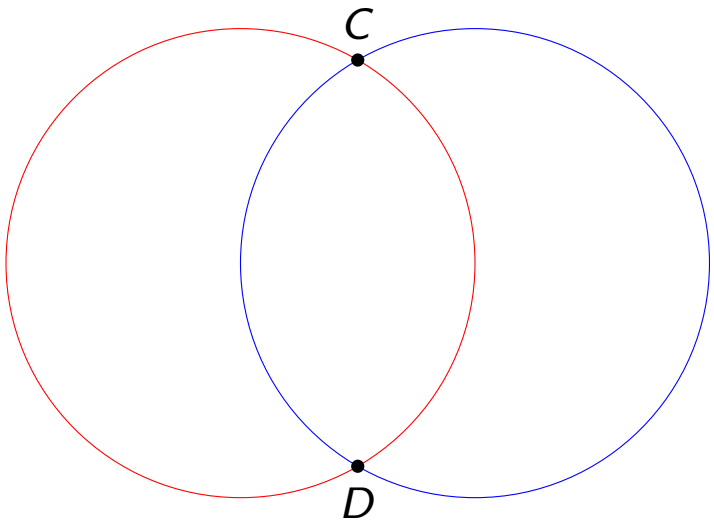
EJEMPLO 43

```
\tkzDefPoints{
    0  /0  /O,
    3  /0  /R,
    0  /1  /A,
    1  /0  /B%
}
\tkzDrawCircle(O,R)
\tkzInterLC(A,B)(O,R)
    \tkzGetPoints{C}{D}

\tkzDrawPoints(A,B,C,D)
\tkzDrawLine[Latex-Latex](C,D)
```



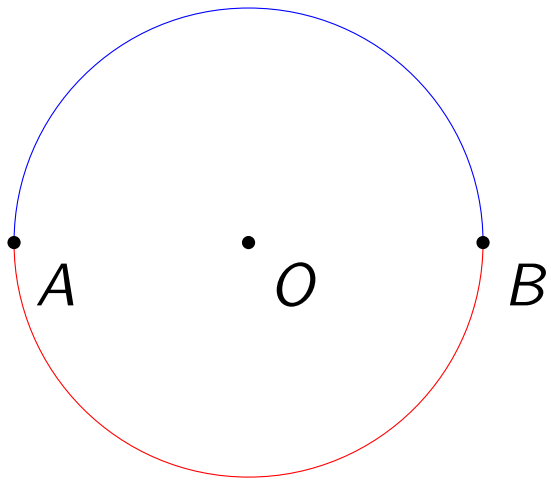
EJEMPLO 44

```
\tkzDefPoints{
    0  /0  /A,
    3  /0  /B%
}

\tkzDrawCircle[red](A,B)
\tkzDrawCircle[blue](B,A)

\tkzInterCC(A,B)(B,A)
    \tkzGetPoints{C}{D}

\tkzDrawPoints(C,D)
```



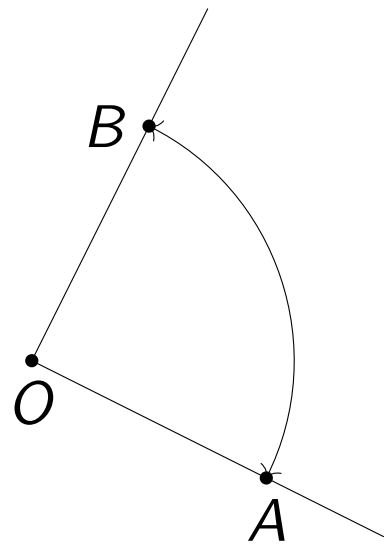
EJEMPLO 45

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(6,0){B}

\tkzDefMidPoint(A,B)
    \tkzGetPoint{O}

\tkzDrawSemiCircle[blue](O,B)
\tkzDrawSemiCircle[red](O,A)

\tkzDrawPoints(O,A,B)
```



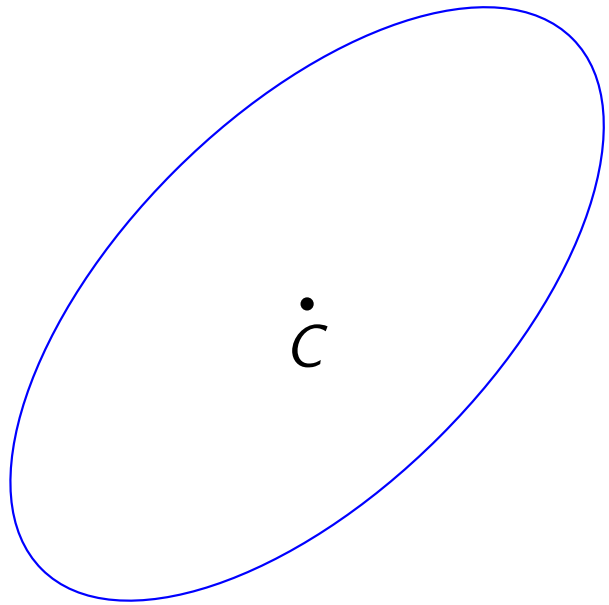
EJEMPLO 46

```
\tkzDefPoint(0,0){O}
\tkzDefPoint(2,-1){A}

\tkzDefPointBy[rotation= center
 ↪  O angle 90](A)
    \tkzGetPoint{B}

\tkzDrawArc[<->](O,A)(B)

\tkzDrawLines[add = 0 and
 ↪  .5](O,A O,B)
\tkzDrawPoints(O,A,B)
```



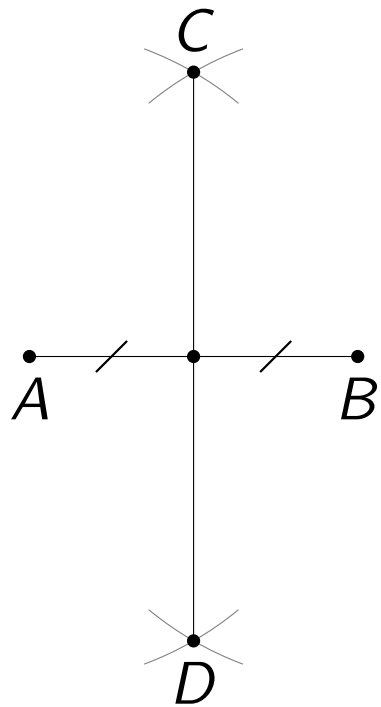
EJEMPLO 47

```
\tkzDefPoint(0,4){C}
\tkzDrawEllipse[blue](C,4,2,45)
\tkzDrawPoints(C)
\tkzLabelPoints(C)
```



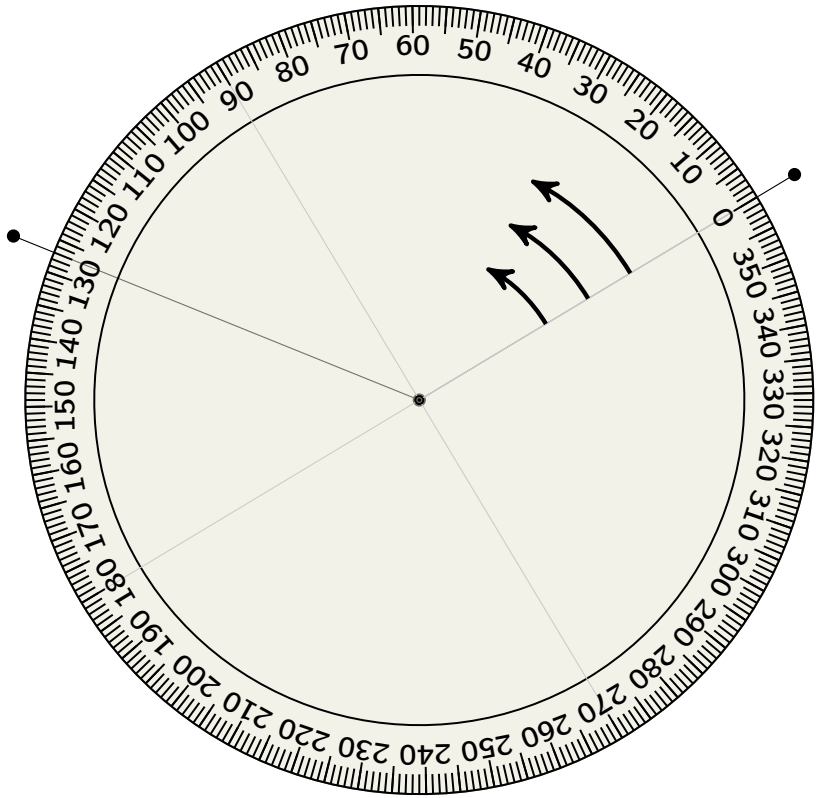
EJEMPLO 48

```
\tkzDefPoint(0,0){A}
\tkzDefPoint(3,0){B}

\tkzInterCC(A,B)(B,A)
    \tkzGetPoints{C}{D}
\tkzInterLL(A,B)(C,D)
    \tkzGetPoint{M}

\tkzCompass(A,C)
\tkzCompass(B,C)
\tkzCompass(A,D)
\tkzCompass(B,D)
```



EJEMPLO 49

```
\tkzDefPoint(2,0){A}
\tkzDefPoint(0,0){O}
\tkzDefShiftPoint[A](31:4){B}
\tkzDefShiftPoint[A](158:4){C}
\tkzDrawPoints(A,B,C)
\tkzDrawSegments(A,B A,C)
\tkzProtractor[scale=0.9](A,B)
```



EJEMPLO 50

```
\begin{tikzpicture}[scale=0.6]
  \begin{scope}[rotate=30]
    \tkzDefPoint(2,3){A}
    \begin{scope}[shift=(A)]
      \tkzDefPoint(90:5){B}
      \tkzDefPoint(30:5){C}
    \end{scope}
  \end{scope}
  \tkzDrawPolygon(A,B,C)
  \tkzLabelPoints[above](B,C)
  \tkzLabelPoints[below](A)
  \tkzDrawPoints(A,B,C)
\end{tikzpicture}
```