Triangle groups and tilings

Damien Mégy

Drawn with the **luahyperbolic** package. (`https://github.com/dmegy/luahyperbolic`)

The picture is a reproduction of fig.1 p. 442 in Parker, Wang, Xie, *Complex Hyperbolic* $(3,3,n)$ *Triangle Groups*, Pacific Journal of Math., vol 289 no. 2 (2016), available at `https://msp.org/pjm/2016/280-2/pjm-v280-n2-p08-p.pdf`.

```
\begin{luacode*}
local PI = math.pi
local A, B, C = hyper.triangleWithAngles(PI/3, PI/3, PI/5)
local polygon = {}
for k=1,10 do
  table.insert(polygon, hyper.rotation(A,k*PI/5)(C))
end
hyper.tikzBegin("scale=4,rotate=190")
for i=1,10 do
  hyper.drawSegment(A, polygon[i])
  hyper.drawSegment(polygon[i], polygon[i%10+1], "very thick")
end
for i=1,4 do
  local P,Q = polygon[i],polygon[i+1]
  hyper.drawLine(P,Q)
  hyper.labelPoint((P+Q)/1.8,"$\\mathcal{B}_{".. (i-2).."}$","")
  hyper.labelPoint((P+Q)/6.5,"$n$","")
  hyper.labelPoint((5*P+Q)/6.8,"$3$","")
  hyper.labelPoint((P+5*Q)/6.8,"$3$","")
end
hyper.tikzEnd()
\end{luacode*}
```

