作りましょう 0.7

パラメタ方式フォントファミリ
校とプリティプリントのソース

Tsukurimashou 0.7

Parametric Font Family
Proofs and pretty-printed source code

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Proofs and pretty-printed source code for Tsukurimashou

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Volume XIV

Blackletter Lolita

bll.mp **BLL**

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bll-f5c.mp **F5C**

bll.mp

```
%
% Blackletter Lolita overrides for Tsukurimashou
% Copyright (C) 2011, 2012 Matthew Skala
%
[Standard copyright notice]

```

```

familyname:="BLL";

is_blackletter:=true;

```

```

pair bl_stroke_dir[];
numeric bl_stroke_width[];

bl_stroke_dir[0]:=dir 0;
bl_stroke_dir[1]:=dir 45;
bl_stroke_dir[2]:=dir 90;
bl_stroke_dir[3]:=dir 135;
bl_stroke_dir[4]:=dir 180;
bl_stroke_dir[5]:=dir 225;
bl_stroke_dir[6]:=dir 270;
bl_stroke_dir[7]:=dir 315;
num_bl_strokes:=8;

bl_stroke_width[0]:=0.4;
bl_stroke_width[1]:=0.6;
bl_stroke_width[2]:=1.6;
bl_stroke_width[3]:=0.8;
bl_stroke_width[4]:=0.4;
bl_stroke_width[5]:=0.6;
bl_stroke_width[6]:=1.6;
bl_stroke_width[7]:=0.8;

for state:=0 upto num_bl_strokes-1:
  bl_stroke_dir[state]:=bl_stroke_dir[state]/abs(bl_stroke_dir[state]);
endfor;

```

```

vardef tsu_render_segment(expr i,p,q) =
  begingroup
    save lp,glyph,pcorner,pdir,k,ta,tz,dl,dr,dp,sl,sr,goodness,best,dtl,dtr,
      itl,itr;
```

```
path lp,glyph;
numeric pdir[],k,ta,tz,sl,sr,goodness,best,dtl,dtr,itl,itr;
pair pcorner[],dl,dr,dp;

% for debugging - dot the path to be approximated
if false:
  for j:=0 step 0.25 until length p:
    glstk[ngls]:=fullcircle scaled 25 shifted point j of p;
    ngls:=ngls+1;
  endfor;
fi;

pcorner[0]:=point 0 of p;
pdir[0]=-1;
k:=0;
ta:=0;
forever:
  k:=k+1;

  if ta=floor(ta):
    dp:=(postcontrol ta of p)-(point ta of p);
  else:
    dp:=direction ta of p;
  fi;
  dp:=dp/abs(dp);

  tz:=floor(ta+1);
  forever:
    exitif tz=length p;
    dr:=(point tz of p)-(precontrol tz of p);
    exitif (dr dotprod dp)<=0;
    dl:=(postcontrol tz of p)-(point tz of p);
    dl:=dl/abs(dl);
    dr:=dr/abs(dr);
    exitif (dl dotprod dr)<0.95;
    tz:=tz+1;
  endfor;

  dr:=(point tz of p)-(point ta of p);
  dr:=dr/abs(dr);
  dp:=(dp+0.05*dr)/abs(dp+0.05*dr);

  dl:=bl_stroke_dir[0];
  dr:=bl_stroke_dir[num_bl_strokes-1];
  sl:=0;
  sr:=num_bl_strokes-1;
  best:=(dl dotprod dp)+(dr dotprod dp);

```

```
      for j:=0 upto num_bl_strokes-2:
        goodness:=(bl_stroke_dir[j] dotprod dp)
                 +(bl_stroke_dir[j+1] dotprod dp);
        if goodness>best:
          best:=goodness;
          dr:=bl_stroke_dir[j];
          dl:=bl_stroke_dir[j+1];
          sr:=j;
          sl:=j+1;
        fi;
      endfor;
% message "ta "&(decimal ta)&
% " tz "&(decimal tz)&
% " sl "&(decimal sl)&
% " sr "&(decimal sr);

      if (((point tz of p)-(point ta of p)) dotprod dl>=
        abs((point tz of p)-(point ta of p))*0.999)
        and (tz-ta<3):
        pdir[k]:=sl;
      elseif (((point tz of p)-(point ta of p)) dotprod dr>=
        abs((point tz of p)-(point ta of p))*0.999)
        and (tz-ta<3):
        pdir[k]:=sr;
      else:
        itl:=xpart (p intersectiontimes
          (((dl*10)+point ta of p)--((dl*1000)+point ta of p)));
        itr:=xpart (p intersectiontimes
          (((dr*10)+point ta of p)--((dr*1000)+point ta of p)));
        if (itl<ta+0.01) or (itl>tz):
          itl:=-1;
        fi;
        if (itr<ta+0.01) or (itr>tz):
          itr:=-1;
        fi;
        dtl:=directiontime dl of p;
        dtr:=directiontime dr of p;
        if (dtl<ta+0.01) or (dtl>tz):
          dtl:=-1;
        fi;
        if (dtr<ta+0.01) or (dtr>tz):
          dtr:=-1;
        fi;
        if (itl>ta) and ((itl<=itr) or (itr<ta)):
          tz:=itl;
          pdir[k]:=sl;
        elseif itr>ta:
          tz:=itr;
```

```
  pdir[k]:=sr;
elseif (dtl>ta) and ((dtl<dtr) or (dtr<ta)):
  tz:=dtl;
  pdir[k]:=sr;
  pcorner[k]:=(whatever*dr)+point ta of p;
  pcorner[k]=(whatever*dl)+point tz of p;
  if k>1:
    if pdir[k]=pdir[k-1]:
      pcorner[k-1]:=pcorner[k];
      k:=k-1;
    fi;
  fi;
  k:=k+1;
  pdir[k]:=sl;
elseif dtr>ta:
  tz:=dtr;
  pdir[k]:=sl;
  pcorner[k]:=(whatever*dl)+point ta of p;
  pcorner[k]=(whatever*dr)+point tz of p;
  if k>1:
    if pdir[k]=pdir[k-1]:
      pcorner[k-1]:=pcorner[k];
      k:=k-1;
    fi;
  fi;
  k:=k+1;
  pdir[k]:=sr;
elseif false and (pdir[k-1]=sr):
  pcorner[k-1]:=whatever*dr+point ta of p;
  pcorner[k-1]=whatever*dl+point tz of p;
  pdir[k]:=sl;
elseif false and (pdir[k-1]=sl):
  pcorner[k-1]:=whatever*dl+point ta of p;
  pcorner[k-1]=whatever*dr+point tz of p;
  pdir[k]:=sr;
elseif abs(ypart dl)>abs(ypart dr):
  pdir[k]:=sr;
  pcorner[k]:=whatever*dr+point ta of p;
  pcorner[k]=whatever*dl+point tz of p;
  k:=k+1;
  pdir[k]:=sl;
else:
  pdir[k]:=sl;
  pcorner[k]:=whatever*dl+point ta of p;
  pcorner[k]=whatever*dr+point tz of p;
  k:=k+1;
  pdir[k]:=sr;
fi;
```

```
      fi;
      pcorner[k]:=point tz of p;

      if k>1:
        if pdir[k]=pdir[k-1]:
          pcorner[k-1]:=pcorner[k];
          k:=k-1;
        fi;
      fi;

      exitif tz>=length p;
      ta:=tz;
    endfor;

    for j:=1 upto k:
      if (abs(pcorner[j-1]-pcorner[j])>10) and (pdir[j]>=0):
        lp:=subpath (0.01,0.99) of (pcorner[j-1]--pcorner[j]);
        default__nib:=fix__nib(obstackna.bosize[i]*tsu__brush__max
            *bl_stroke_width[pdir[j]],
          obstackna.bosize[i]*tsu__brush__max*tsu__brush__shape
            *bl_stroke_width[pdir[j]],
          tsu__brush__angle);
        pen__stroke()(lp)(glyph);
        glstk[ngls]:=regenerate(glyph);
        ngls:=ngls+1;
      fi;
    endfor;
  endgroup;
enddef;
```

bll-co.mp

```
%
% Blackletter Lolita Cosette
% Copyright (C) 2011 Matthew Skala
%
[Standard copyright notice]

% BLL COSETTE

input preintro.mp;

stylename:=”Cosette”;

(0,4) transformed tsu_brush_xf = (4,0.75);
(1,1) transformed tsu_brush_xf = (1,0.62);
(4,0) transformed tsu_brush_xf = (0,0.75);

tsu_brush_min:=0.62;
tsu_brush_max:=0.75;

def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;
sharp_corners:=true;

input intro.mp;
input bll.mp;
```

pentacross.mp

```
%
% Pentagrams and crosses for Blackletter Lolita
% Copyright (C) 2011 Matthew Skala
%
[Standard copyright notice]

inclusion_lock(pentacross);

```

Utilities For Pentagrams And Crosses

```
% UTILITIES FOR PENTAGRAMS AND CROSSES

path my_nib,my_path;

% Golden Ratio
phi:=(1+sqrt(5))/2;

% lw - line width
% ct - corner type, use -1 for rounded, 0 for bevelled, 1 for mitred
% dp - path to draw
vardef draw_stroked(expr lw,ct)(expr dp) =
  default_nib:=fix_nib(lw,lw,0);
  if ct<0:
    draw_stroked_opts()(dp);
  else:
    draw_stroked_opts(tip(ct)(0 for i:=1 upto length dp: ,i endfor))(dp);
  fi;
enddef;

vardef draw_stroked_opts(text myopts)(expr dp) =
  begingroup
    save glyph;
    path glyph;
    pen_stroke(myopts)(dp)(glyph);
    if cycle dp:
      glyph.r:=regenerate(glyph.r);
      glyph.l:=regenerate(glyph.l);
      dangerousFill glyph.r;
      dangerousFill glyph.l;
    else:
      glyph:=regenerate(glyph);
      dangerousFill glyph;
    fi;
  endgroup;
```

```
enddef;

path pentagram;
pentagram:=
  ((dir 0)–(dir 144)–(dir 288)–(dir 72)–(dir 216)–cycle)
  rotated 90 scaled 0.5;

% ”tip isolated” pentagram, used to de-emphasize corners
path tipentagram;
tipentagram:=insert_nodes(pentagram)
  (0.15,0.85,1.15,1.85,2.15,2.85,3.15,3.85,4.15,4.85);

vardef cross_path(expr hwid) =
  begingroup
    save x,y;
    numeric x,y;
    z1=(0,0.5); % spectacles
    z2=(0,-0.5); % testicles
    z3=(y3-y1,(phi-1)[y2,y1]); % wallet
    z4=(y1-y3,y3); % watch
    x5=x12=x13=x16=x1-hwid;
    x6=x7=x10=x11=x1+hwid;
    x8=x9=x4;
    x14=x15=x3;
    y5=y6=y1;
    y7=y8=y15=y16=y3+hwid;
    y9=y10=y13=y14=y3-hwid;
    y11=y12=y2;
    z5–z6–z7–z8–z9–z10–z11–z12–z13–z14–z15–z16–cycle
  endgroup
enddef;
```

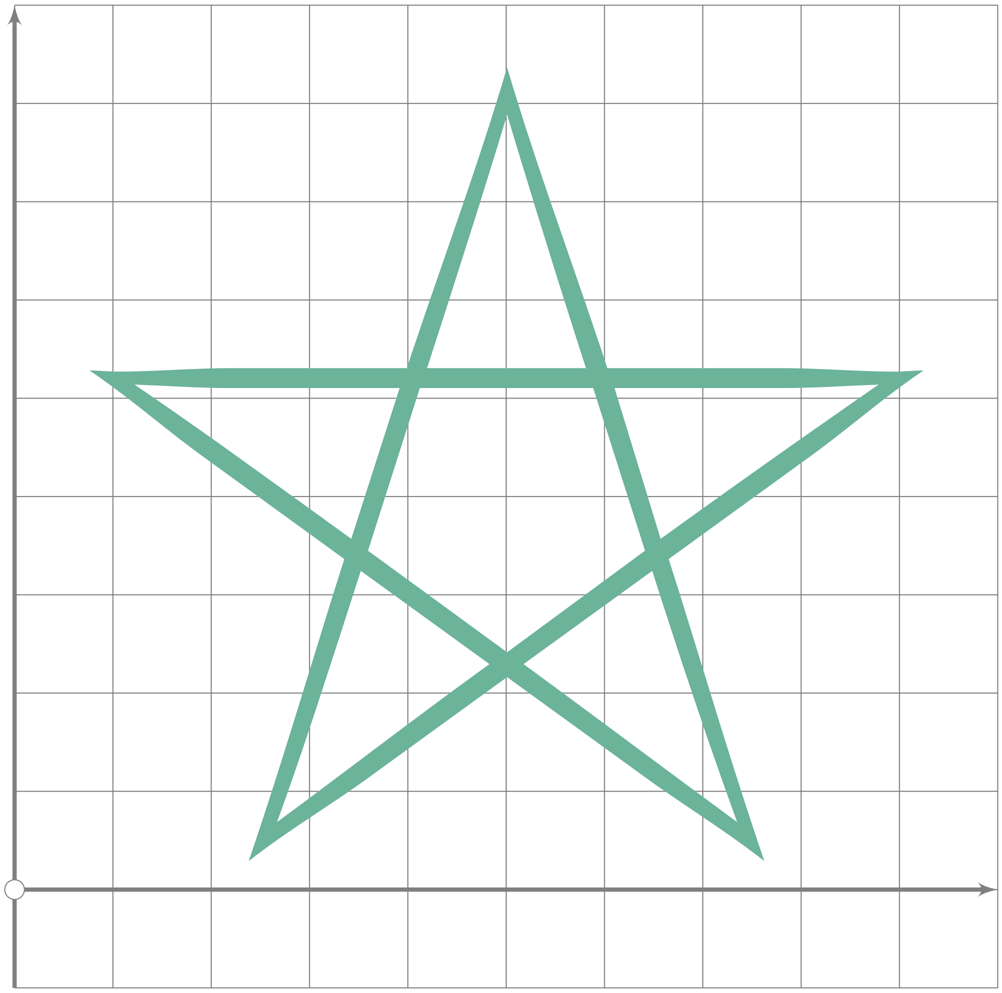
bll-f5c.mp

```
%
% Unicode page F5C (pentagrams and crosses) for Blackletter Lolita
% Copyright (C) 2011, 2012 Matthew Skala
%
[Standard copyright notice]



beginfont

% AUTODEPS
input pentacross.mp;

do_late_includes;



```

Pentagrams

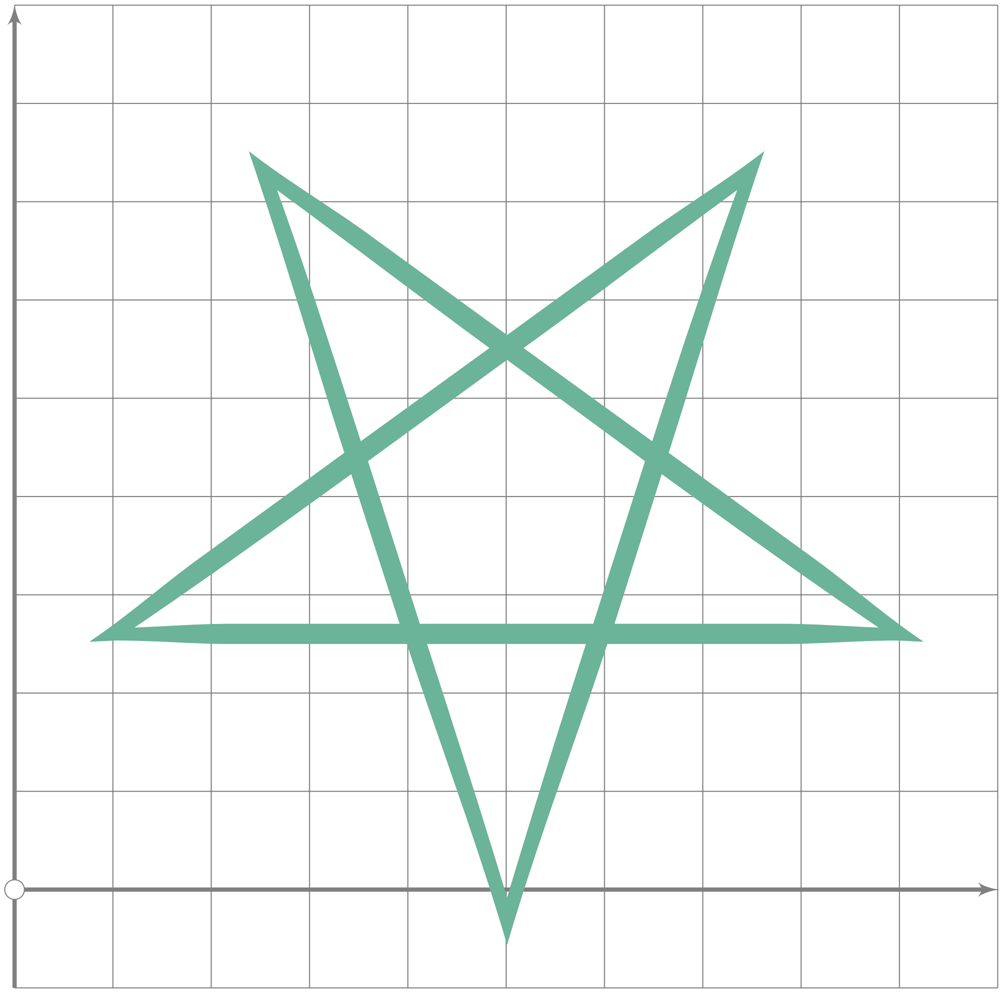
```
% PENTAGRAMS
```

U+F5C01
bll.pentagram01



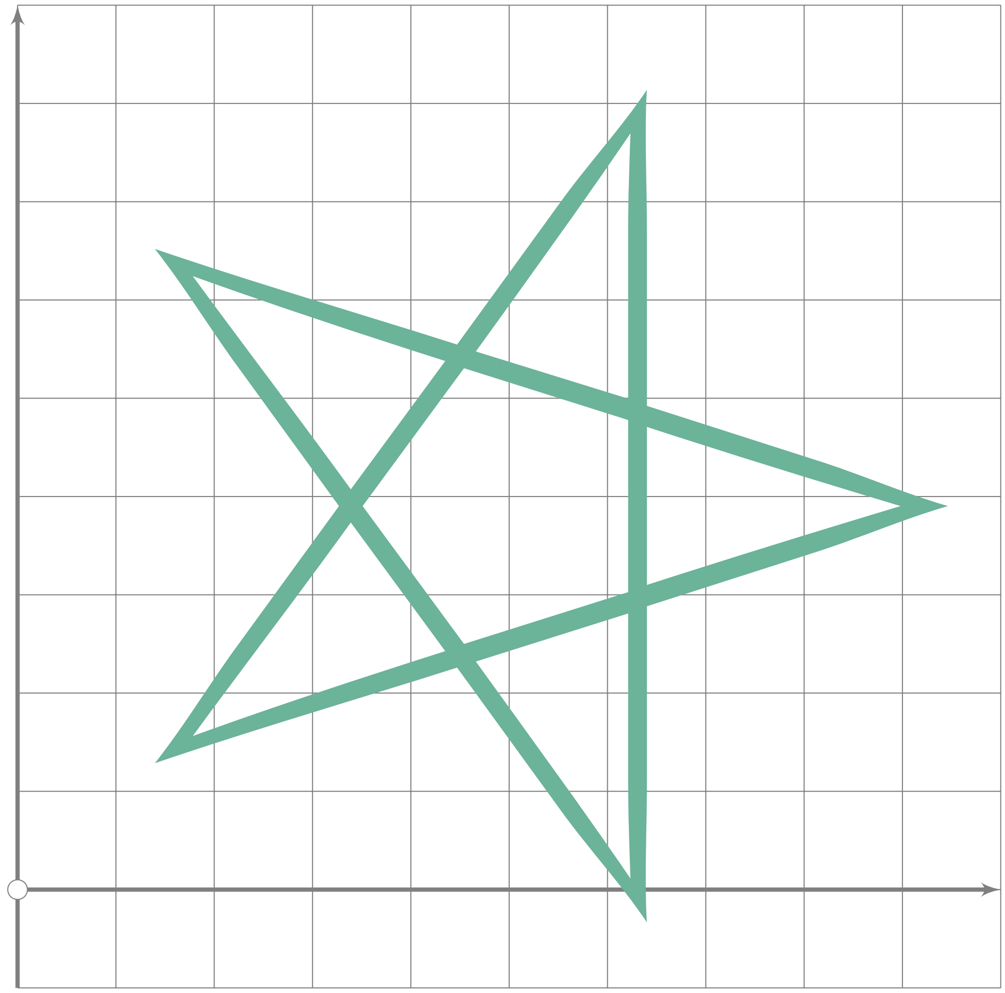
```
begintsuglyph(”pentagram01”,1);
  default_nib:=fix_nib(20,20,0);
  my_nib:=fix_nib(14,14,0);
  draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
    (tipentagram scaled 844 shifted centre_pt);
endtsuglyph;
```

U+F5C02
bll.pentagram02



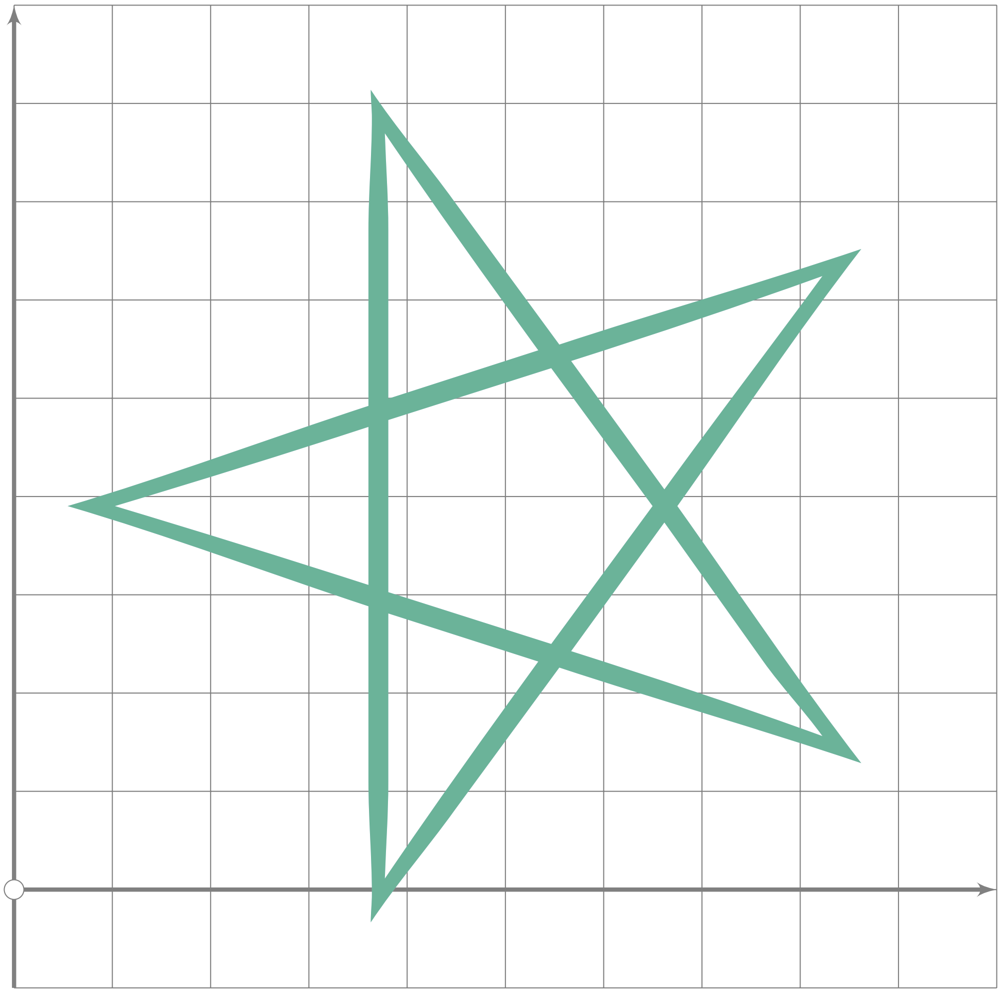
```
begintsuglyph(”pentagram02”,2);
  default_nib:=fix_nib(20,20,0);
  my_nib:=fix_nib(14,14,0);
  draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
    (tipentagram rotated 180 scaled 844 shifted centre_pt);
endtsuglyph;
```

U+F5C03
bll.pentagram03



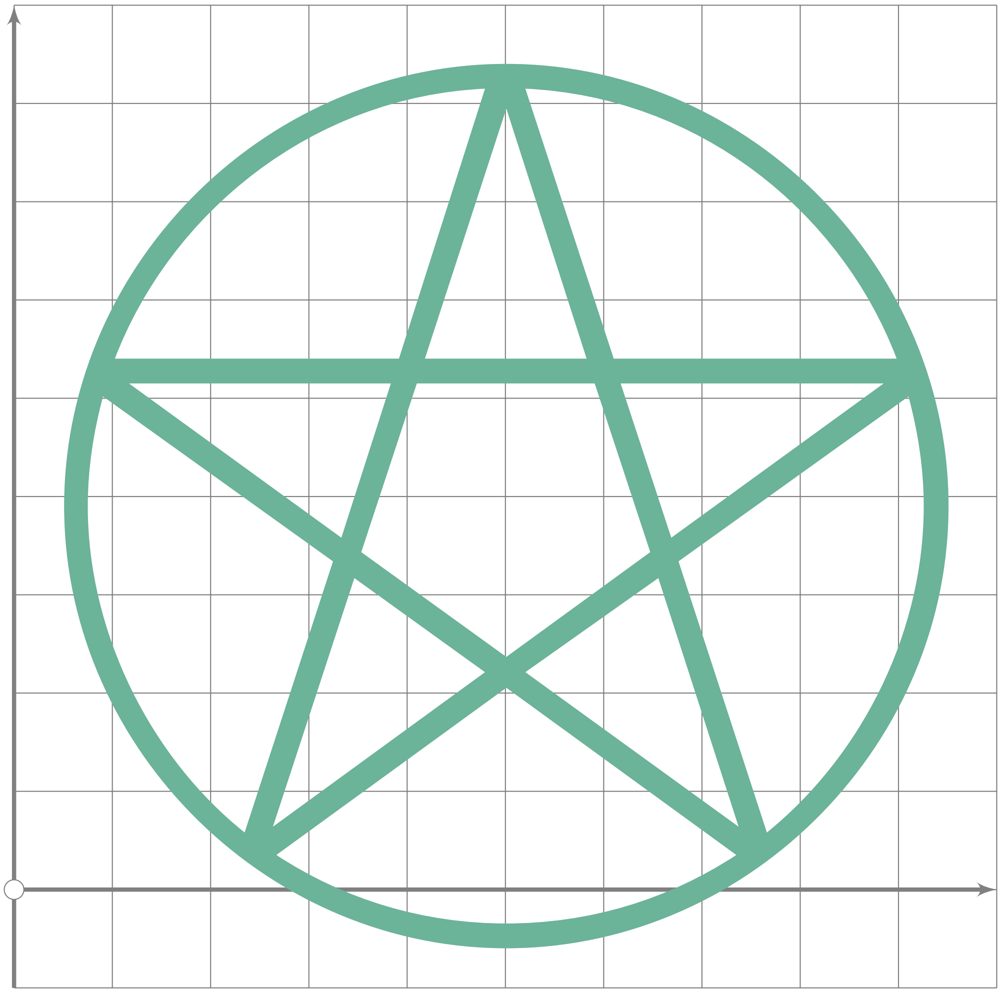
```
begintsuglyph("pentagram03",3);
  default_nib:=fix_nib(20,20,0);
  my_nib:=fix_nib(14,14,0);
  draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
    (tipentagram rotated 270 scaled 844 shifted centre_pt);
endtsuglyph;
```

U+F5C04
bll.pentagram04



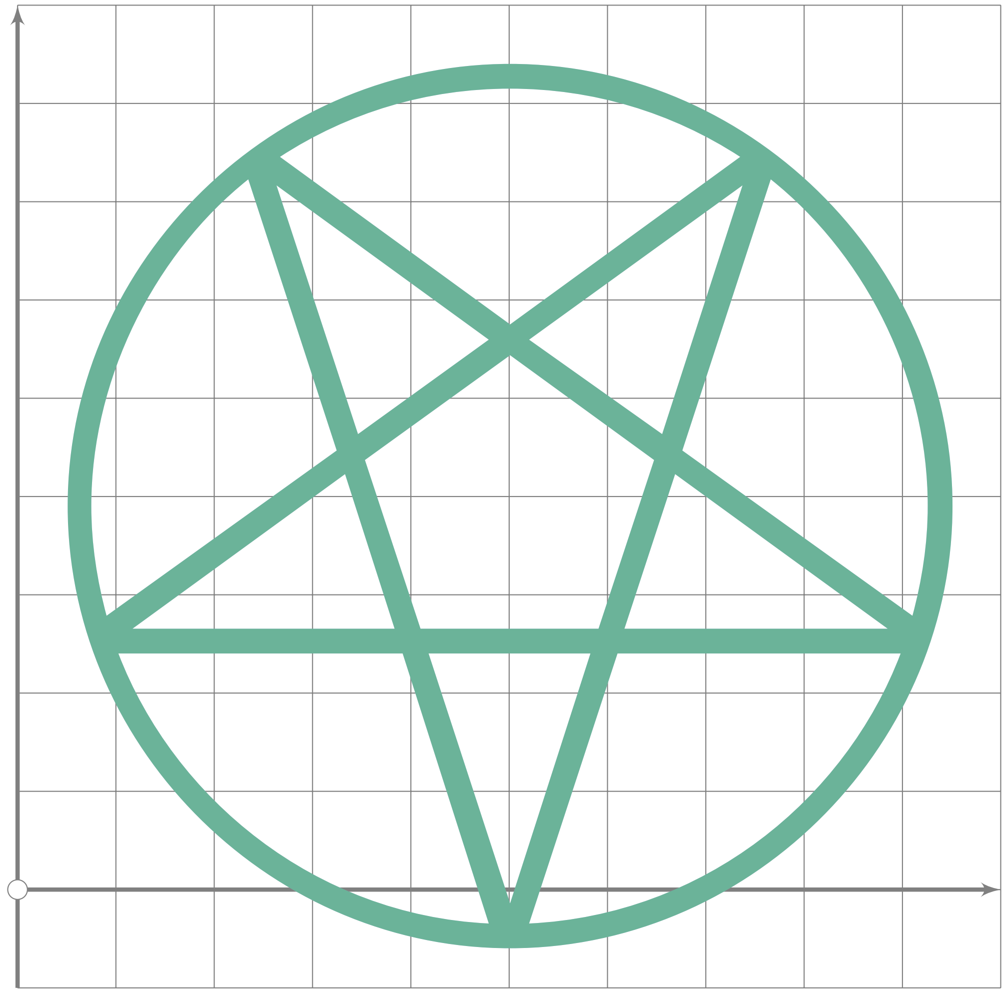
```

begintsuglyph("pentagram04",4);
  default_nib:=fix_nib(20,20,0);
  my_nib:=fix_nib(14,14,0);
  draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
    (tipentagram rotated 90 scaled 844 shifted centre_pt);
endtsuglyph;
```

U+F5C05
bll.pentagram05



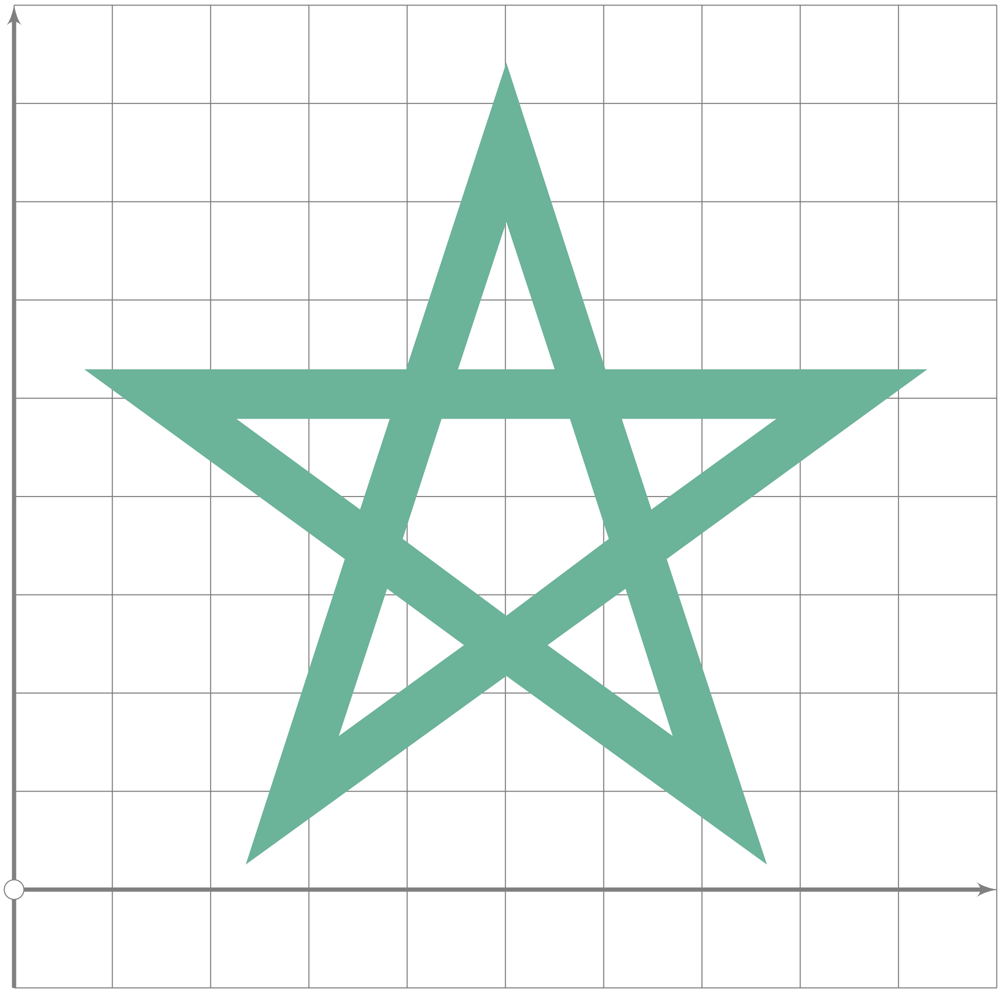
```
begintsuglyph(”pentagram05”,5);
  draw_stroked(25,0)(pentagram scaled 888 shifted centre_pt);
  draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
endtsuglyph;
```

U+F5C06
bll.pentagram06

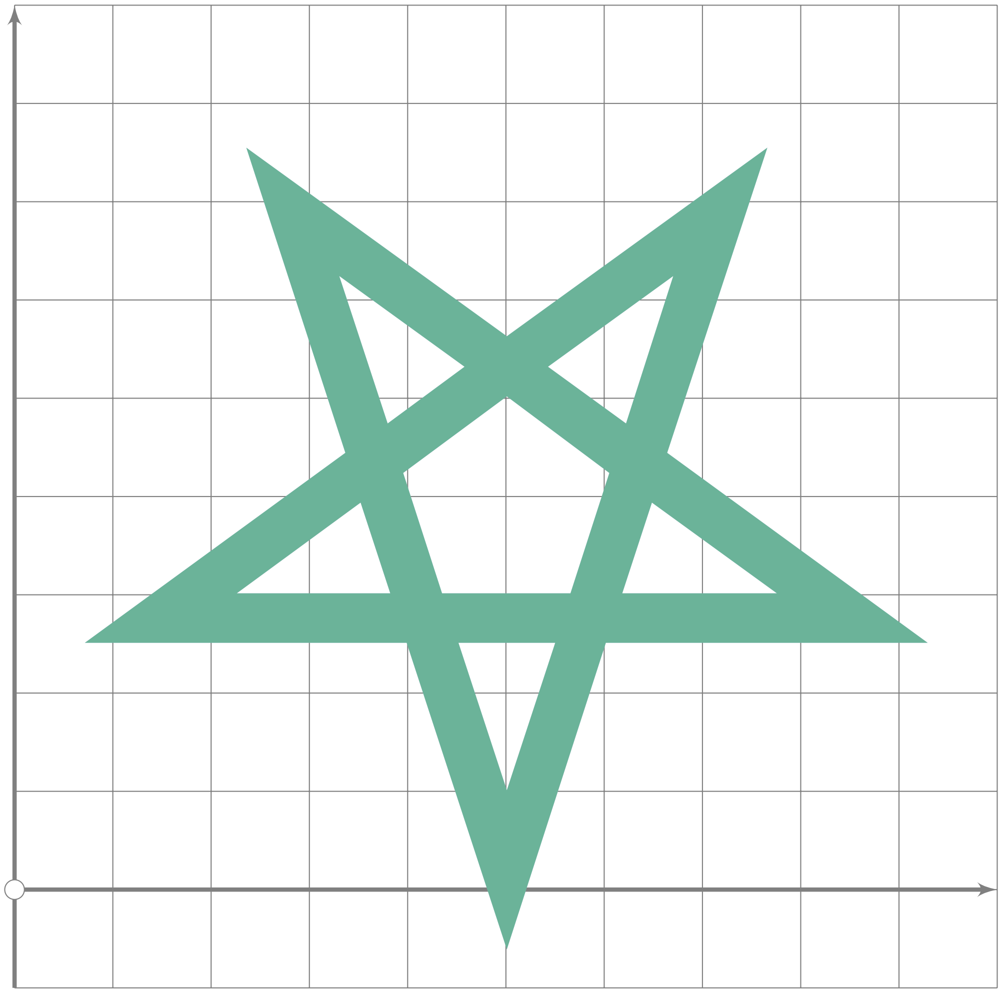


```
begintsuglyph(”pentagram06”,6);
  draw_stroked(25,0)(pentagram rotated 180 scaled 888 shifted centre_pt);
  draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
endtsuglyph;
```

U+F5C07
bll.pentagram07

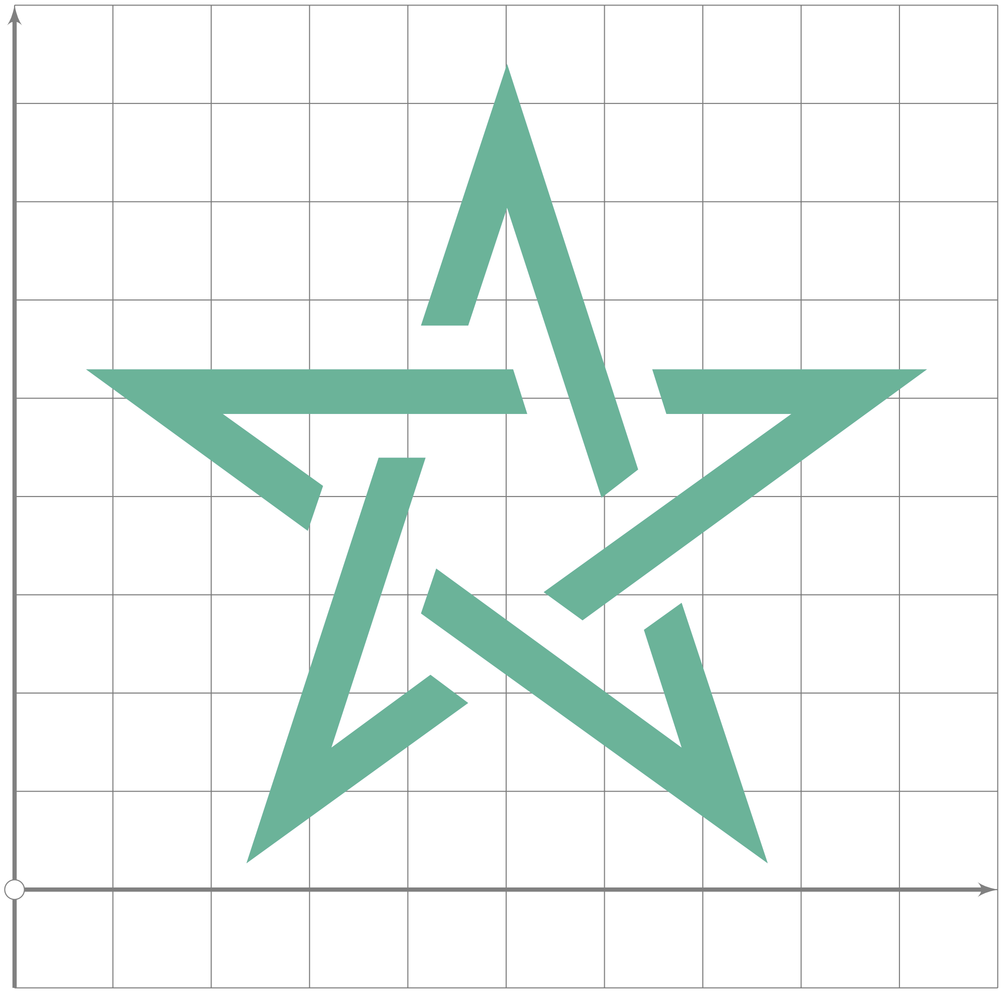


```
begintsuglyph(”pentagram07”,7);
  draw_stroked(50,1)(pentagram scaled 740 shifted centre_pt);
endtsuglyph;
```



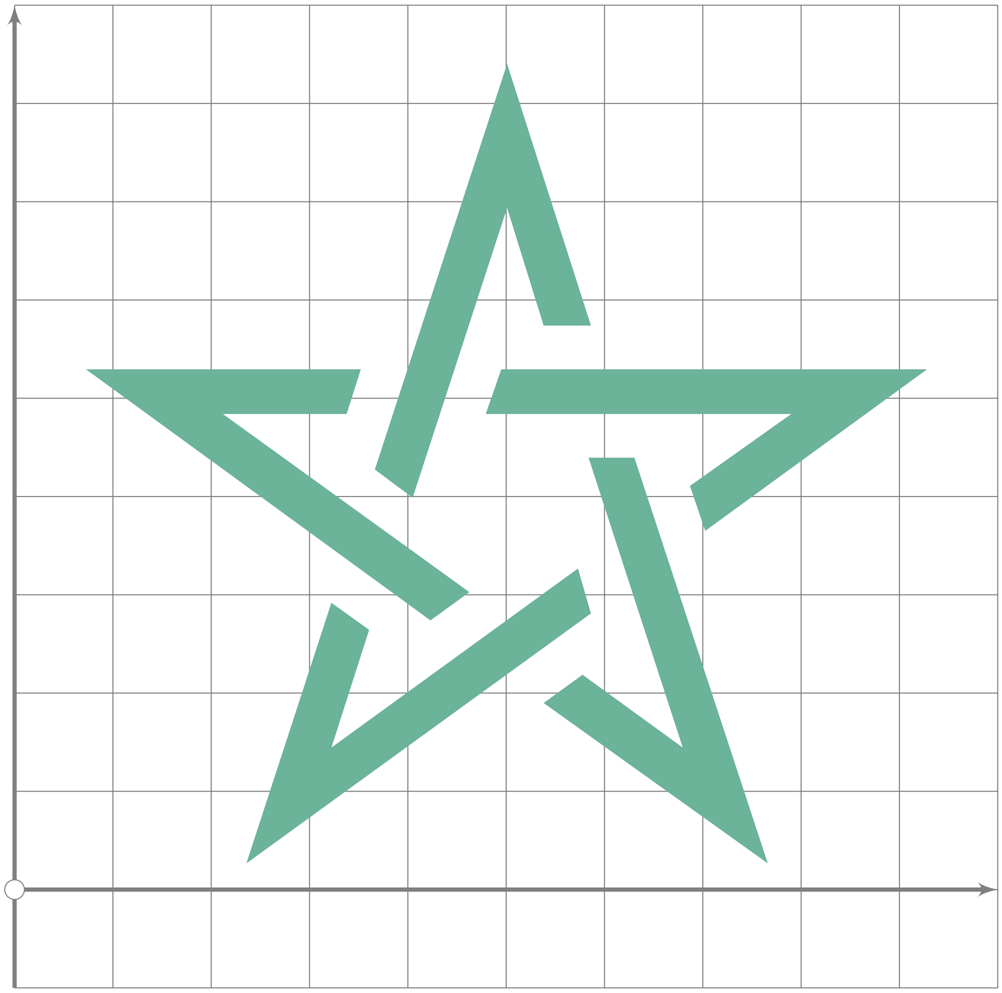
```
begintsuglyph("pentagram08",8);
  draw_stroked(50,1)(pentagram rotated 180 scaled 740 shifted centre_pt);
endtsuglyph;

vardef penta_ell(expr lw,loff) =
  begingroup
    save myl;
    path myl[];
    myl1:=(dir 90)--(dir 234);
    myl2:=((dir 162)--(dir 18)) shifted (loff*dir 90);
    myl3:=myl1 shifted (lw*dir 342);
    myl6:=(dir 90)--(dir 306);
    myl4:=myl6 shifted (lw*dir 198);
    myl5:=((dir 18)--(dir 234)) shifted ((loff+lw)*dir 126);
    (dir 90)--(myl6 intersectionpoint myl5)--
      (myl5 intersectionpoint myl4)--(myl4 intersectionpoint myl3)--
      (myl3 intersectionpoint myl2)--(myl2 intersectionpoint myl1)--cycle
  endgroup
enddef;
```

U+F5C09
bll.pentagram09



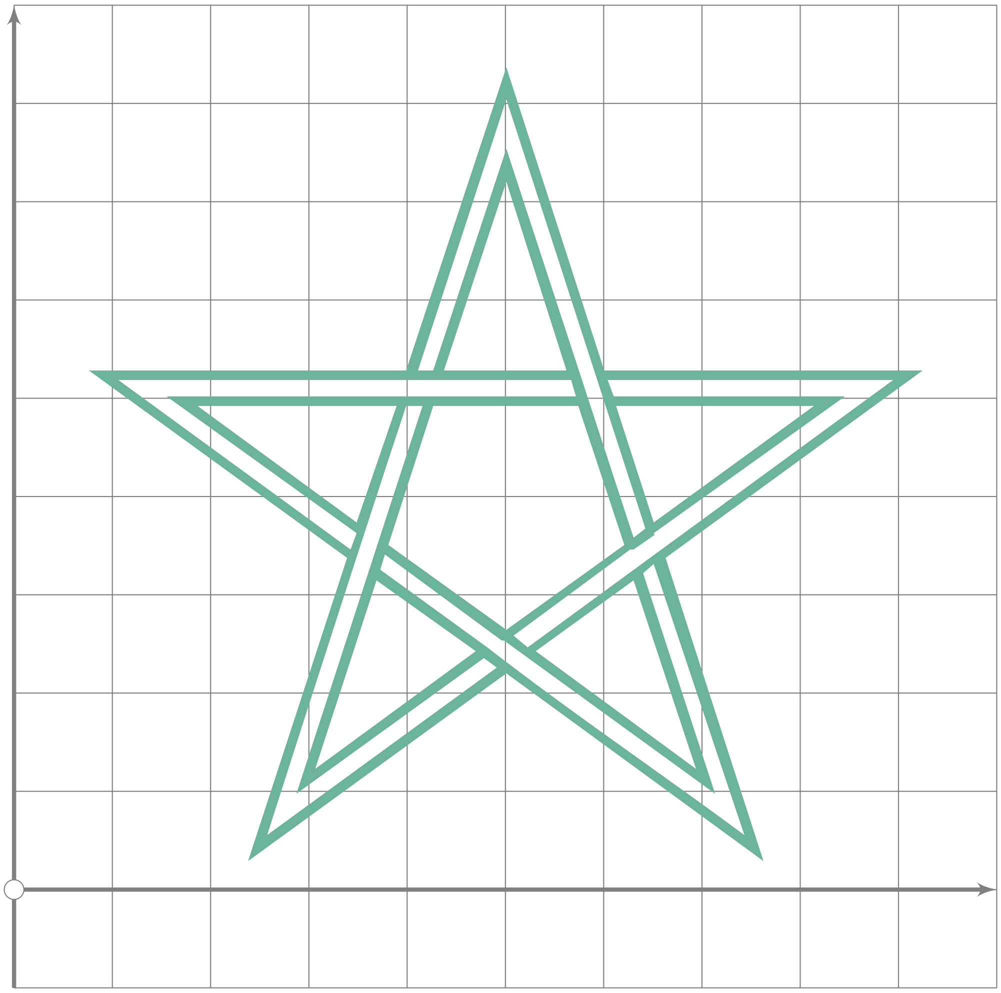
```
begintsuglyph(”pentagram09”,9);
  my_path:=penta_ell(0.1,0.1);
  for i:=0 upto 4:
    dangerousFill my_path rotated (i*72) scaled 450 shifted centre_pt;
  endfor;
endtsuglyph;
```

U+F5C0A
bll.pentagram10



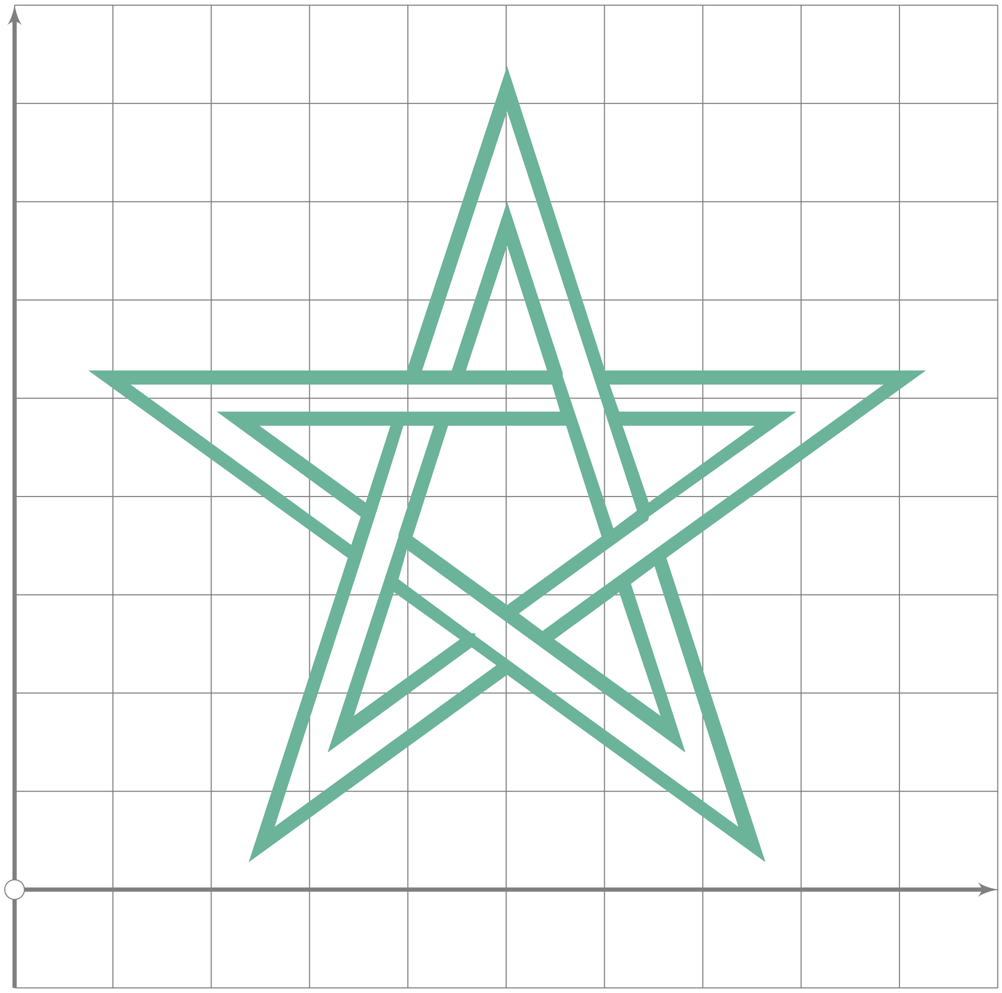
```
begintsuglyph("pentagram10",10);
  my_path:=penta_ell(0.1,0.1);
  for i:=0 upto 4:
    dangerousFill my_path
      reflectedabout (down,up) rotated (i*72) scaled 450 shifted centre_pt;
  endfor;
endtsuglyph;
```

U+F5C0B
bll.pentagram11



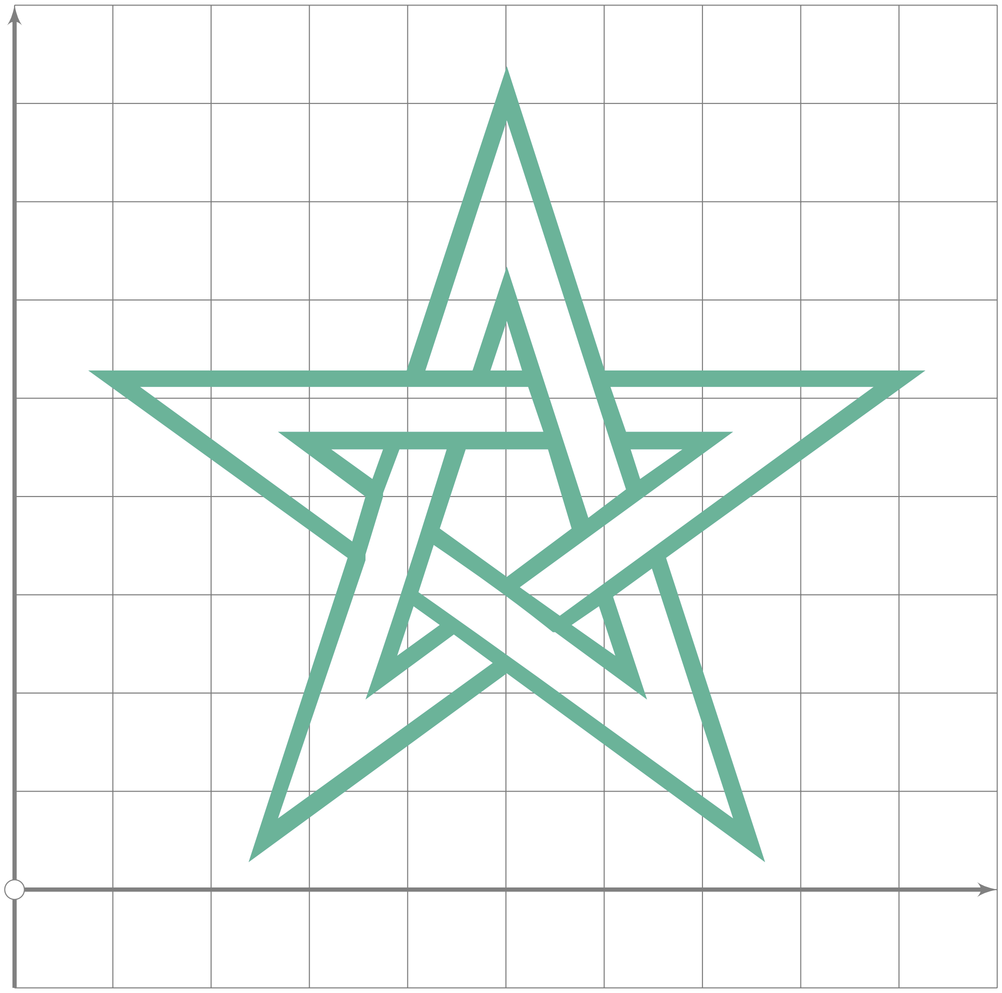
```

begintsuglyph(”pentagram11”,11);
  begingroup
    save lp;
    path lp[];
    my_path:=penta_ell(0.06,0);
    lp1:=subpath (5,7) of my_path;
    lp2:=subpath (2,4) of my_path;
    default_nib:=fix_nib(10,10,0);
    pen_stroke(tip(1)(1))(lp1 scaled 430 shifted centre_pt)(lp3);
    pen_stroke(tip(1)(1))(lp2 scaled 430 shifted centre_pt)(lp4);
    lp3:=regenerate(lp3);
    lp4:=regenerate(lp4);
    for i:=0 upto 4:
      dangerousFill lp3 rotatedaround (centre_pt,i*72);
      dangerousFill lp4 rotatedaround (centre_pt,i*72);
    endfor;
  endgroup;
endtsuglyph;
```

U+F5C0C
bll.pentagram12



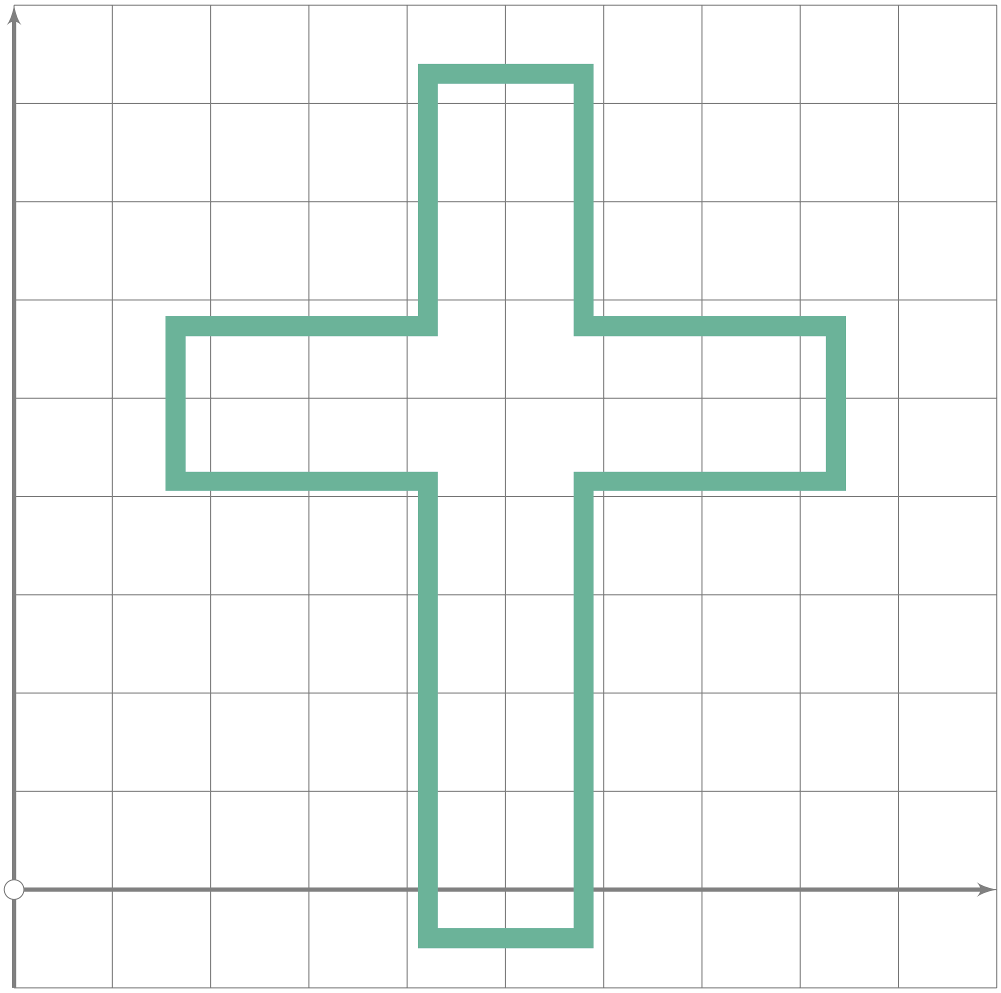
```
begintsuglyph("pentagram12",12);
  begingroup
    save lp;
    path lp[];
    my_path:=penta_ell(0.10,0);
    lp1:=subpath (5,7) of my_path;
    lp2:=subpath (2,4) of my_path;
    default_nib:=fix_nib(14,14,0);
    pen_stroke(tip(1)(1))(lp1 scaled 425 shifted centre_pt)(lp3);
    pen_stroke(tip(1)(1))(lp2 scaled 425 shifted centre_pt)(lp4);
    lp3:=regenerate(lp3);
    lp4:=regenerate(lp4);
    for i:=0 upto 4:
      dangerousFill lp3 rotatedaround (centre_pt,i*72);
      dangerousFill lp4 rotatedaround (centre_pt,i*72);
    endfor;
  endgroup;
endtsuglyph;
```

U+F5C0D
bll.pentagram13



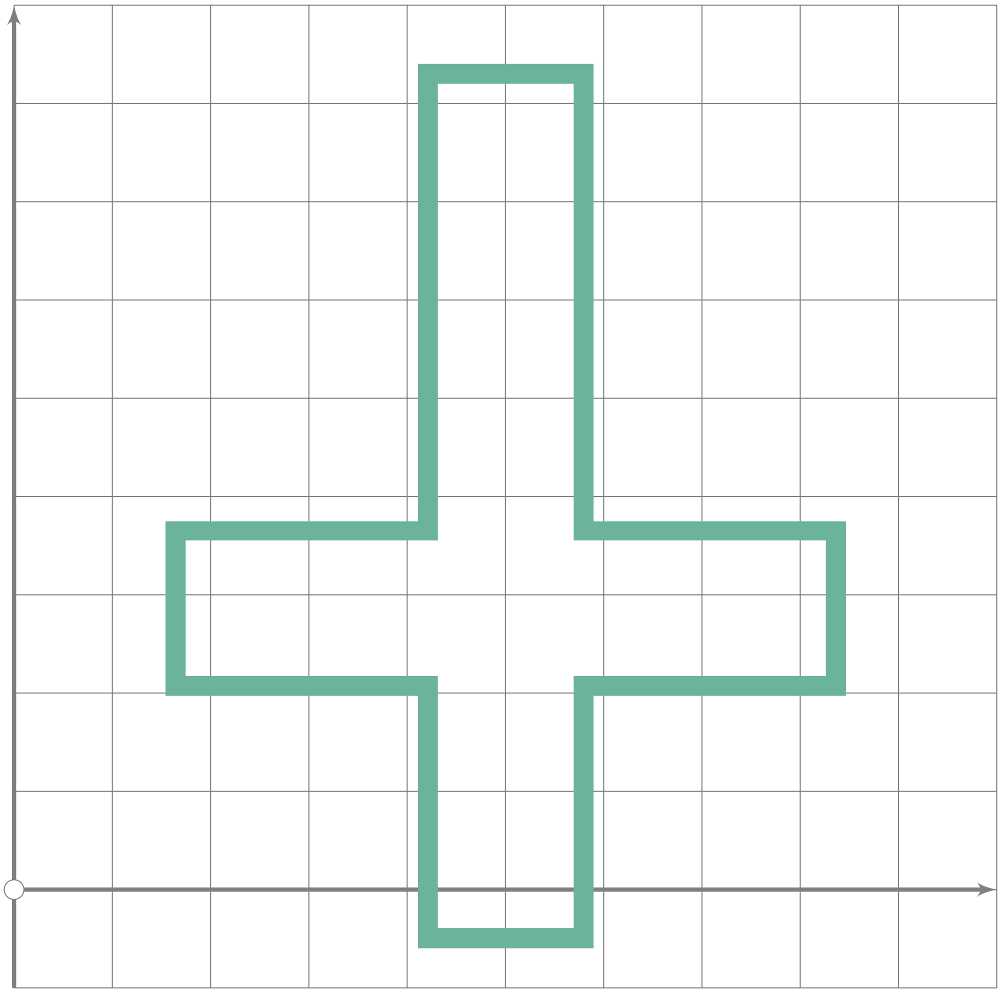
```
begintsuglyph("pentagram13",13);
  begingroup
    save lp;
    path lp[];
    my_path:=penta_ell(0.15,0);
    lp1:=subpath (5,7) of my_path;
    lp2:=subpath (2,4) of my_path;
    default_nib:=fix_nib(17,17,0);
    pen_stroke(tip(1)(1))(lp1 scaled 420 shifted centre_pt)(lp3);
    pen_stroke(tip(1)(1))(lp2 scaled 420 shifted centre_pt)(lp4);
    lp3:=regenerate(lp3);
    lp4:=regenerate(lp4);
    for i:=0 upto 4:
      dangerousFill lp3 rotatedaround (centre_pt,i*72);
      dangerousFill lp4 rotatedaround (centre_pt,i*72);
    endfor;
  endgroup;
endtsuglyph;
```

U+F5C81
bll.cross01



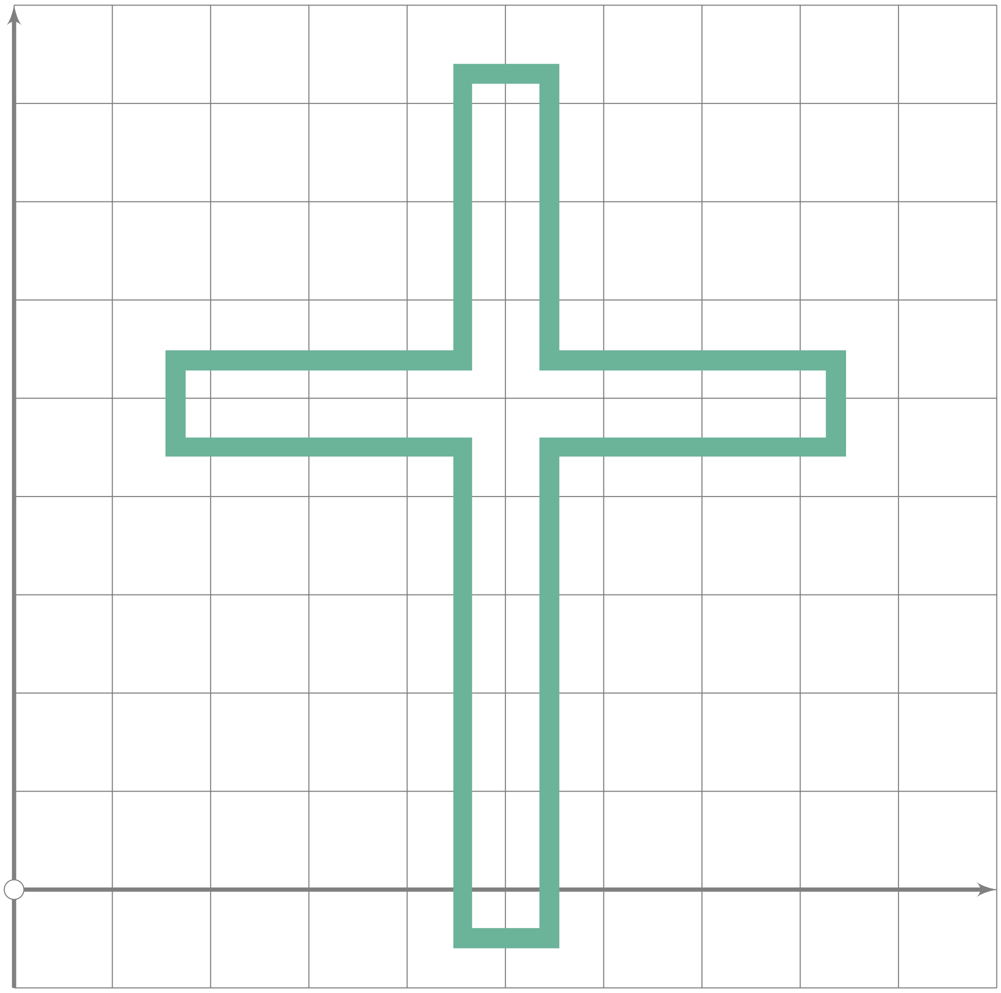
```

begintsuglyph(”cross01”,129);
  draw_stroked(20,1)(cross_path(0.09) scaled 880 shifted centre_pt);
endtsuglyph;
```

U+F5C82
bll.cross02



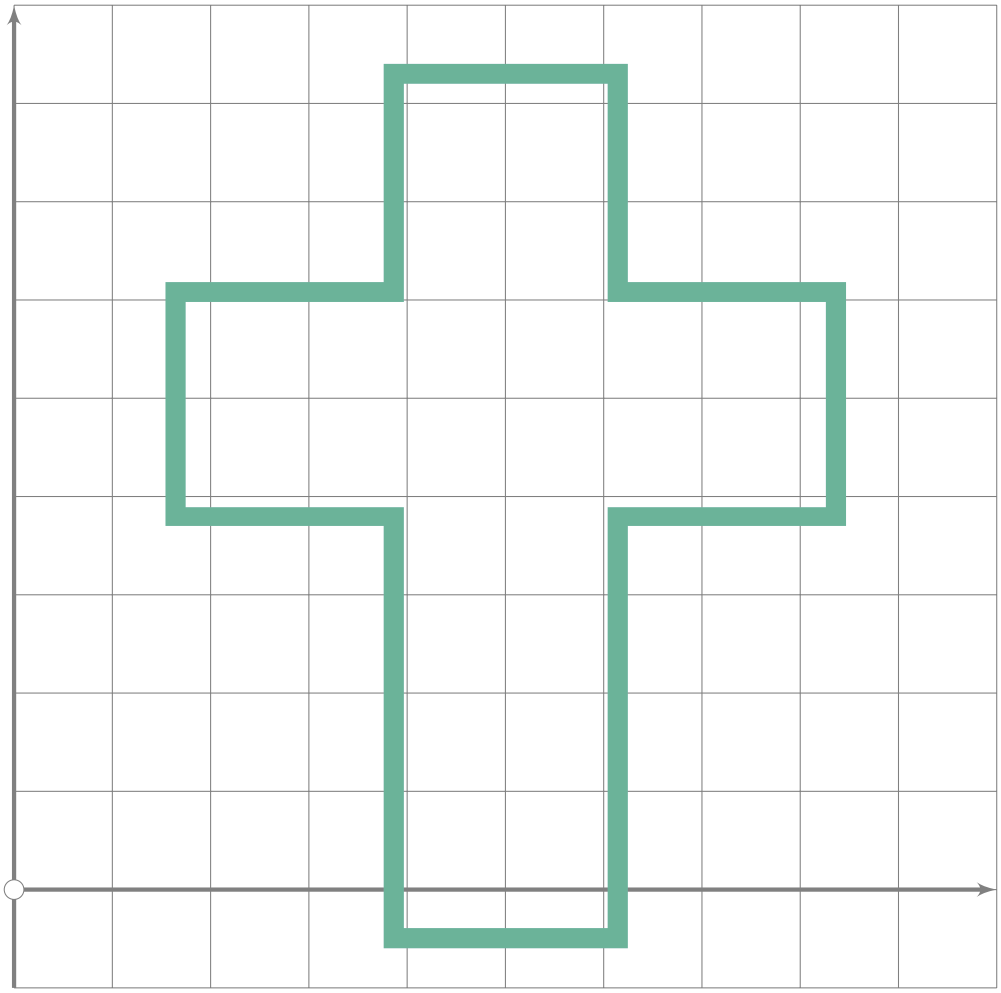
```
begintsuglyph(”cross02”,130);
  draw_stroked(20,1)(cross_path(0.09)
    rotated 180 scaled 880 shifted centre_pt);
endtsuglyph;
```

U+F5C83
bll.cross03



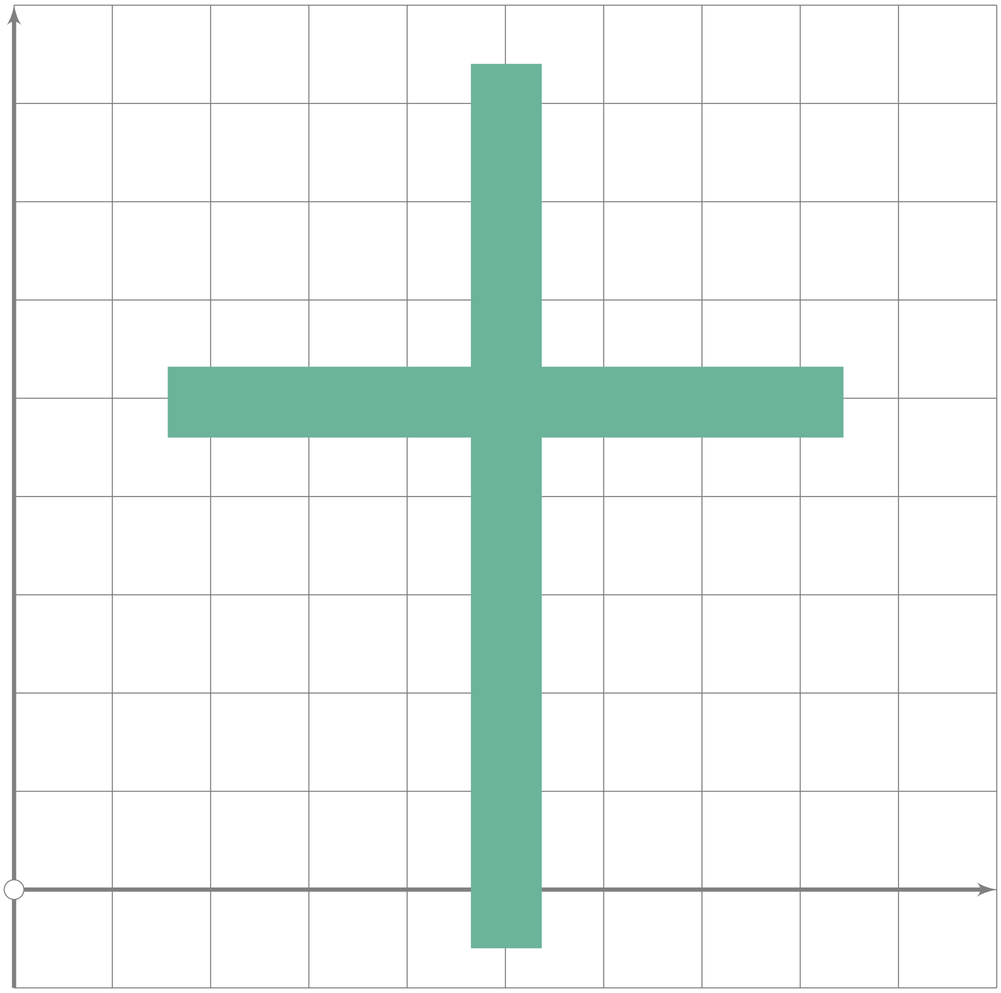
```
begintsuglyph("cross03",131);
  draw_stroked(20,1)(cross_path(0.05) scaled 880 shifted centre_pt);
endtsuglyph;
```

U+F5C84
bll.cross04



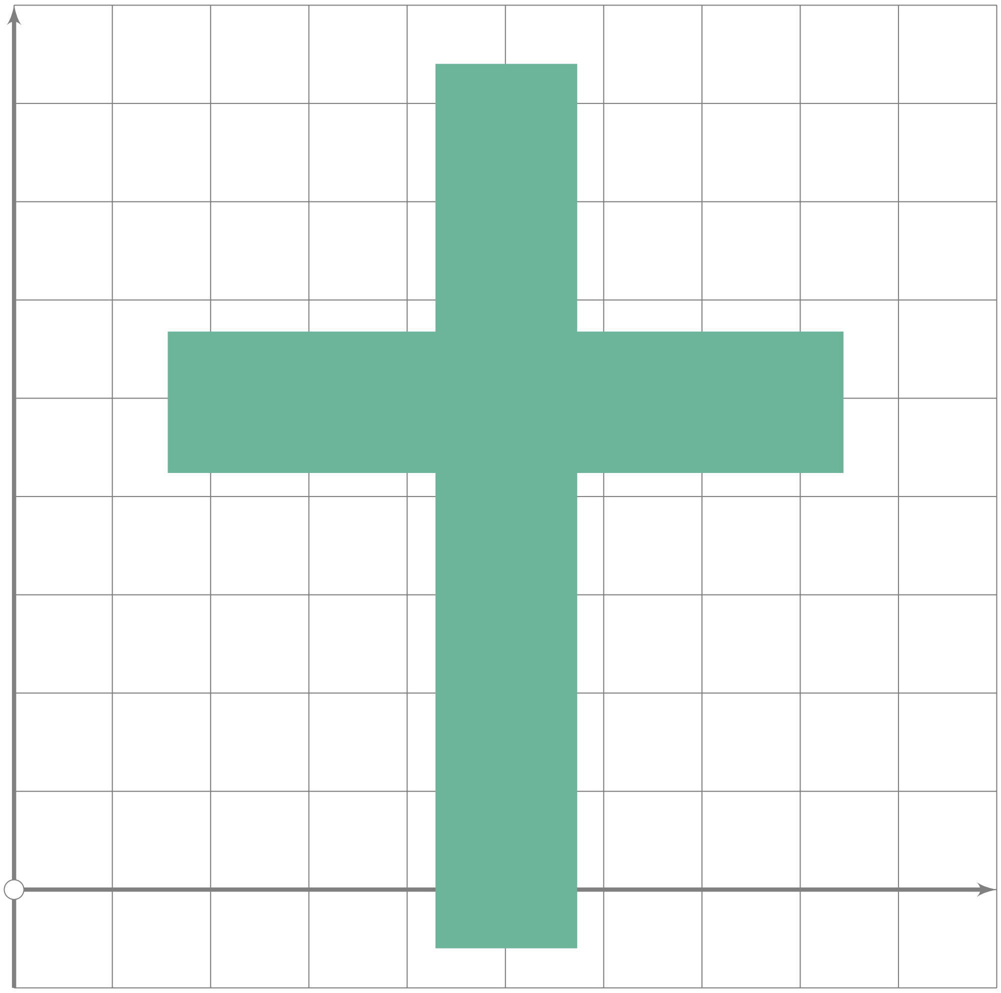
```

begintsuglyph(”cross04”,132);
   draw_stroked(20,1)(cross_path(0.13) scaled 880 shifted centre_pt);
endtsuglyph;
```

U+F5C85
bll.cross05



```

begintsuglyph(”cross05”,133);
  dangerousFill cross_path(0.04) scaled 900 shifted centre_pt;
endtsuglyph;
```

U+F5C86
bll.cross06



```
begintsuglyph("cross06",134);
  dangerousFill cross_path(0.08) scaled 900 shifted centre_pt;
endtsuglyph;


endfont;
```