

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

bll-co.mp

CO

pentacross.mp

PENT

bll-f5c.mp

F5C

bll.mp

BLL

```
1 %
2 % Blackletter Lolita overrides for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 _____
32
33 familyname:="BLL";
34
35 is_blackletter:=true;
36
37 _____
38
39 pair bl_stroke_dir[];
40 numeric bl_stroke_width[];
41
42 bl_stroke_dir[0]:=dir 0;
43 bl_stroke_dir[1]:=dir 45;
44 bl_stroke_dir[2]:=dir 90;
45 bl_stroke_dir[3]:=dir 135;
46 bl_stroke_dir[4]:=dir 180;
47 bl_stroke_dir[5]:=dir 225;
48 bl_stroke_dir[6]:=dir 270;
49 bl_stroke_dir[7]:=dir 315;
50 num_bl_strokes:=8;
51
52 bl_stroke_width[0]:=0.4;
53 bl_stroke_width[1]:=0.6;
54 bl_stroke_width[2]:=1.6;
55 bl_stroke_width[3]:=0.8;
56 bl_stroke_width[4]:=0.4;
57 bl_stroke_width[5]:=0.6;
58 bl_stroke_width[6]:=1.6;
59 bl_stroke_width[7]:=0.8;
60
61 for state:=0 upto num_bl_strokes-1:
62   bl_stroke_dir[state]:=bl_stroke_dir[state]/abs(bl_stroke_dir[state]);
63 endfor;
64
65 _____
66
67 vardef tsu_render_segment(expr i,p,q) =
68   begingroup
69     save lp,glyph,pcorner,pdir,k,ta,tz,dl,dr,dp,sl,sr,goodness,best,dtl,dtr,
70     itl,itr;
```

```

71 path lp,glyph;
72 numeric pdir[],k,ta,tz,sl,sr,goodness,best,dtl,dtr,itl,itr;
73 pair pcorner[],dl,dr,dp;
74
75 % for debugging - dot the path to be approximated
76 if false:
77   for j:=0 step 0.25 until length p:
78     glstk[nxls]:=fullcircle scaled 25 shifted point j of p;
79     nxls:=nxls+1;
80   endfor;
81 fi;
82
83 pcorner[0]:=point 0 of p;
84 pdir[0]=-1;
85 k:=0;
86 ta:=0;
87 forever:
88   k:=k+1;
89
90   if ta=floor(ta):
91     dp:=(postcontrol ta of p)-(point ta of p);
92   else:
93     dp:=direction ta of p;
94   fi;
95   dp:=dp/abs(dp);
96
97   tz:=floor(ta+1);
98   forever:
99     exitif tz=length p;
100    dr:=(point tz of p)-(precontrol tz of p);
101    exitif (dr dotprod dp)<=0;
102    dl:=(postcontrol tz of p)-(point tz of p);
103    dl:=dl/abs(dl);
104    dr:=dr/abs(dr);
105    exitif (dl dotprod dr)<0.95;
106    tz:=tz+1;
107   endfor;
108
109   dr:=(point tz of p)-(point ta of p);
110   dr:=dr/abs(dr);
111   dp:=(dp+0.05*dr)/abs(dp+0.05*dr);
112
113   dl:=bl_stroke_dir[0];
114   dr:=bl_stroke_dir[num_bl_strokes-1];
115   sl:=0;
116   sr:=num_bl_strokes-1;
117   best:=(dl dotprod dp)+(dr dotprod dp);
118

```

```

119     for j:=0 upto num_bl_strokes-2:
120         goodness:=(bl_stroke_dir[j] dotprod dp)
121             +(bl_stroke_dir[j+1] dotprod dp);
122         if goodness>best:
123             best:=goodness;
124             dr:=bl_stroke_dir[j];
125             dl:=bl_stroke_dir[j+1];
126             sr:=j;
127             sl:=j+1;
128         fi;
129     endfor;
130 % message "ta "&(decimal ta)&
131 % " tz "&(decimal tz)&
132 % " sl "&(decimal sl)&
133 % " sr "&(decimal sr);
134
135     if (((point tz of p)-(point ta of p)) dotprod dl>=
136         abs((point tz of p)-(point ta of p))*0.999)
137         and (tz-ta<3):
138         pdir[k]:=sl;
139     elseif (((point tz of p)-(point ta of p)) dotprod dr>=
140         abs((point tz of p)-(point ta of p))*0.999)
141         and (tz-ta<3):
142         pdir[k]:=sr;
143     else:
144         itl:=xpart (p intersectiontimes
145             (((dl*10)+point ta of p)-((dl*1000)+point ta of p)));
146         itr:=xpart (p intersectiontimes
147             (((dr*10)+point ta of p)-((dr*1000)+point ta of p)));
148         if (itl<ta+0.01) or (itl>tz):
149             itl:=-1;
150         fi;
151         if (itr<ta+0.01) or (itr>tz):
152             itr:=-1;
153         fi;
154         dtl:=directiontime dl of p;
155         dtr:=directiontime dr of p;
156         if (dtl<ta+0.01) or (dtl>tz):
157             dtl:=-1;
158         fi;
159         if (dtr<ta+0.01) or (dtr>tz):
160             dtr:=-1;
161         fi;
162         if (itl>ta) and ((itl<=itr) or (itr<ta)):
163             tz:=itl;
164             pdir[k]:=sl;
165         elseif itr>ta:
166             tz:=itr;

```

```

167     pdir[k]:=sr;
168 elseif (dtl>ta) and ((dtl<dtr) or (dtr<ta)):
169     tz:=dtl;
170     pdir[k]:=sr;
171     pcorner[k]:=(whatever*dr)+point ta of p;
172     pcorner[k]=(whatever*dl)+point tz of p;
173     if k>1:
174         if pdir[k]=pdir[k-1]:
175             pcorner[k-1]:=pcorner[k];
176             k:=k-1;
177         fi;
178     fi;
179     k:=k+1;
180     pdir[k]:=sl;
181 elseif dtr>ta:
182     tz:=dtr;
183     pdir[k]:=sl;
184     pcorner[k]:=(whatever*dl)+point ta of p;
185     pcorner[k]=(whatever*dr)+point tz of p;
186     if k>1:
187         if pdir[k]=pdir[k-1]:
188             pcorner[k-1]:=pcorner[k];
189             k:=k-1;
190         fi;
191     fi;
192     k:=k+1;
193     pdir[k]:=sr;
194 elseif false and (pdir[k-1]=sr):
195     pcorner[k-1]:=whatever*dr+point ta of p;
196     pcorner[k-1]:=whatever*dl+point tz of p;
197     pdir[k]:=sl;
198 elseif false and (pdir[k-1]=sl):
199     pcorner[k-1]:=whatever*dl+point ta of p;
200     pcorner[k-1]:=whatever*dr+point tz of p;
201     pdir[k]:=sr;
202 elseif abs(ypart dl)>abs(ypart dr):
203     pdir[k]:=sr;
204     pcorner[k]:=whatever*dr+point ta of p;
205     pcorner[k]:=whatever*dl+point tz of p;
206     k:=k+1;
207     pdir[k]:=sl;
208 else:
209     pdir[k]:=sl;
210     pcorner[k]:=whatever*dl+point ta of p;
211     pcorner[k]:=whatever*dr+point tz of p;
212     k:=k+1;
213     pdir[k]:=sr;
214 fi;

```

```

215     fi;
216     pcorner[k]:=point tz of p;
217
218     if k>1:
219         if pdir[k]=pdir[k-1]:
220             pcorner[k-1]:=pcorner[k];
221             k:=k-1;
222         fi;
223     fi;
224
225     exitif tz>=length p;
226     ta:=tz;
227 endfor;
228
229 for j:=1 upto k:
230     if (abs(pcorner[j-1]-pcorner[j])>10) and (pdir[j]>=0):
231         lp:=subpath (0.01,0.99) of (pcorner[j-1]-pcorner[j]);
232         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max
233             *bl_stroke_width[pdir[j]],
234             obstackna.bosize[i]*tsu_brush_max*tsu_brush_shape
235             *bl_stroke_width[pdir[j]],
236             tsu_brush_angle);
237         pen_stroke()(lp)(glyph);
238         glstk[nxls]:=regenerate(glyph);
239         nxls:=nxls+1;
240     fi;
241 endfor;
242 endgroup;
243 enddef;

```

bll-co.mp

```
1 %
2 % Blackletter Lolita Cosette
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 % BLL COSETTE
32
33 input preintro.mp;
34
35 stylename:="Cosette";
36
37 (0,4) transformed tsu_brush_xf = (4,0.75);
38 (1,1) transformed tsu_brush_xf = (1,0.62);
39 (4,0) transformed tsu_brush_xf = (0,0.75);
40
41 tsu_brush_min:=0.62;
42 tsu_brush_max:=0.75;
43
44 def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;
45 sharp_corners:=true;
46
47 input intro.mp;
48 input bll.mp;
```

pentacross.mp

```
1 %
2 % Pentagrams and crosses for Blackletter Lolita
3 % Copyright (C) 2011 Matthew Skala
4 %
```

```
5-29 [Standard copyright notice]
```

```
30
31 inclusion_lock(pentacross);
32
33
34
```

Utilities For Pentagrams And Crosses

```
35 % UTILITIES FOR PENTAGRAMS AND CROSSES
36
37 path my_nib,my_path;
38
39 % Golden Ratio
40 phi:=(1+sqrt(5))/2;
41
42 % lw - line width
43 % ct - corner type, use -1 for rounded, 0 for bevelled, 1 for mitred
44 % dp - path to draw
45 vardef draw_stroked(expr lw,ct)(expr dp) =
46   default_nib:=fix_nib(lw,lw,0);
47   if ct<0:
48     draw_stroked_opts()(dp);
49   else:
50     draw_stroked_opts(tip(ct))(0 for i:=1 upto length dp: ,i endfor))(dp);
51   fi;
52 enddef;
53
54 vardef draw_stroked_opts(text myopts)(expr dp) =
55   begingroup
56     save glyph;
57     path glyph;
58     pen_stroke(myopts)(dp)(glyph);
59     if cycle dp:
60       glyph.r:=regenerate(glyph.r);
61       glyph.l:=regenerate(glyph.l);
62       dangerousFill glyph.r;
63       dangerousFill glyph.l;
64     else:
65       glyph:=regenerate(glyph);
66       dangerousFill glyph;
67     fi;
68   endgroup;
```

PENT

PENT

```
69 enddef;
70
71 path pentagram;
72 pentagram:=
73 ((dir 0)-(dir 144)-(dir 288)-(dir 72)-(dir 216)-cycle)
74 rotated 90 scaled 0.5;
75
76 % "tip isolated" pentagram, used to de-emphasize corners
77 path tipentagram;
78 tipentagram:=insert_nodes(pentagram)
79 (0.15,0.85,1.15,1.85,2.15,2.85,3.15,3.85,4.15,4.85);
80
81 vardef cross_path(expr hwid) =
82 begingroup
83 save x,y;
84 numeric x,y;
85 z1=(0,0.5); % spectacles
86 z2=(0,-0.5); % testicles
87 z3=(y3-y1,(phi-1)[y2,y1]); % wallet
88 z4=(y1-y3,y3); % watch
89 x5=x12=x13=x16=x1-hwid;
90 x6=x7=x10=x11=x1+hwid;
91 x8=x9=x4;
92 x14=x15=x3;
93 y5=y6=y1;
94 y7=y8=y15=y16=y3+hwid;
95 y9=y10=y13=y14=y3-hwid;
96 y11=y12=y2;
97 z5-z6-z7-z8-z9-z10-z11-z12-z13-z14-z15-z16-cycle
98 endgroup
99 enddef;
```

bll-f5c.mp

```
1 %
2 % Unicode page F5C (pentagrams and crosses) for Blackletter Lolita
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31
32
33 beginfont
34
35 % AUTODEPS
36 input pentacross.mp;
37
38 do_late_includes;
39
40
41
```

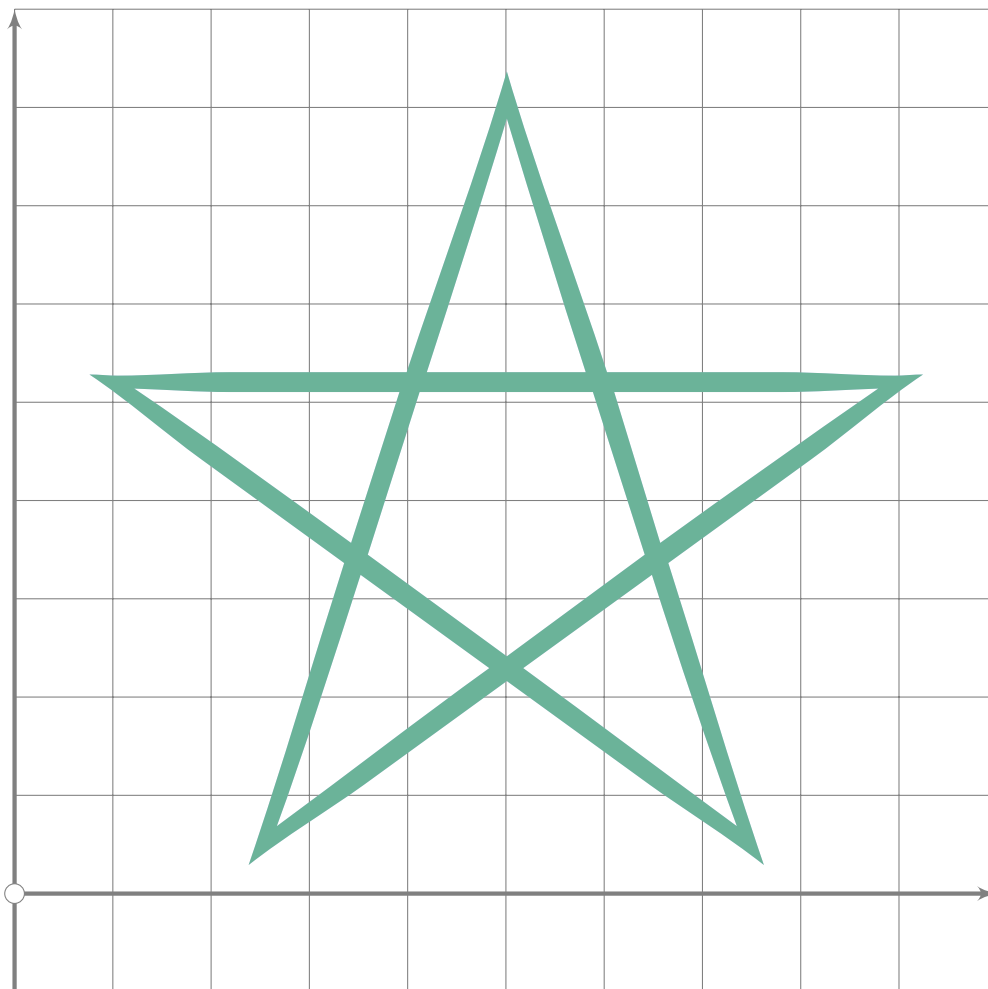
F5C

Pentagrams

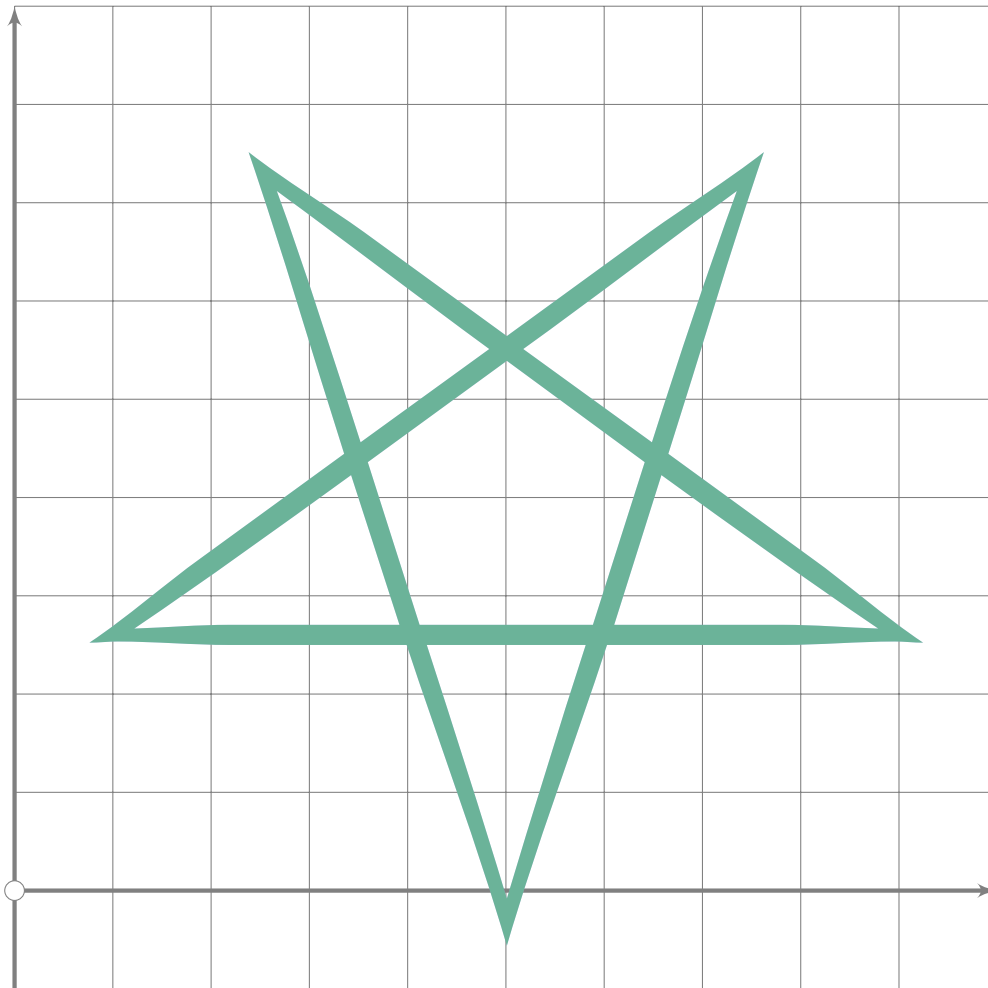
```
42 % PENTAGRAMS
```

U+F5C01
bll.pentagram01

F5C



```
43
44 beginsuglyph("pentagram01",1);
45   default_nib:=fix_nib(20,20,0);
46   my_nib:=fix_nib(14,14,0);
47   draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
48     (tipentagram scaled 844 shifted centre_pt);
49 endsuglyph;
```



F5C

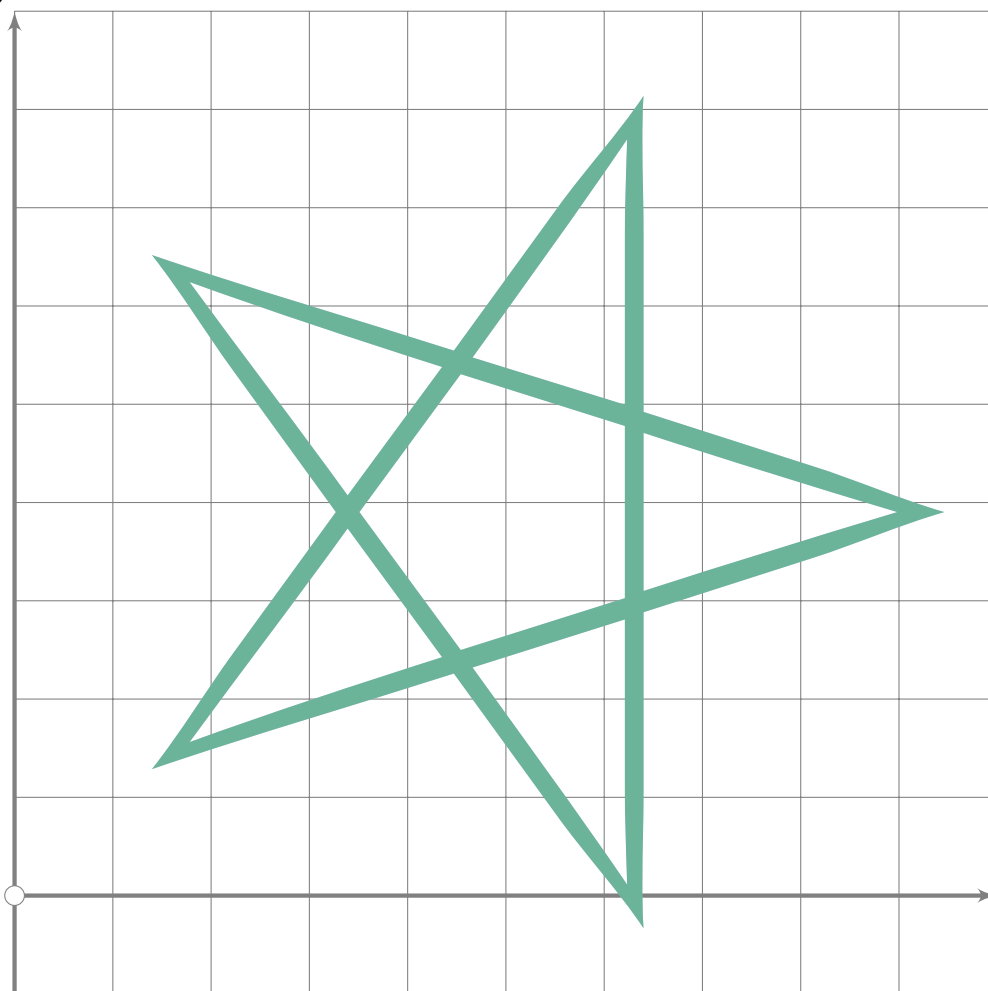
```

50
51 beginsuglyph("pentagram02";2);
52  default_nib:=fix_nib(20,20,0);
53  my_nib:=fix_nib(14,14,0);
54  draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
55    (tipentagram rotated 180 scaled 844 shifted centre_pt);
56 endsuglyph;

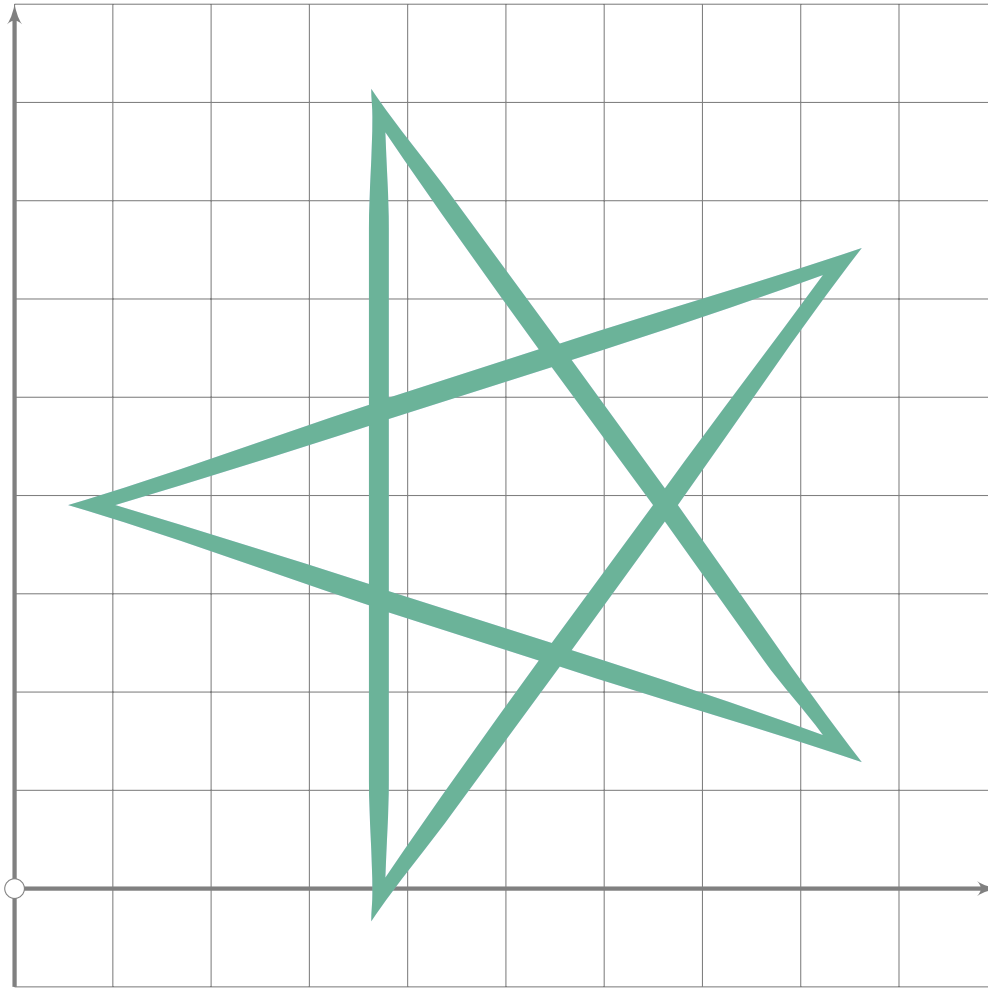
```

U+F5C03
bll.pentagram03

F5C



```
57
58 begint Suglyph("pentagram03";3);
59 default_nib:=fix_nib(20,20,0);
60 my_nib:=fix_nib(14,14,0);
61 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
62   (tipentagram rotated 270 scaled 844 shifted centre_pt);
63 endtsuglyph;
```



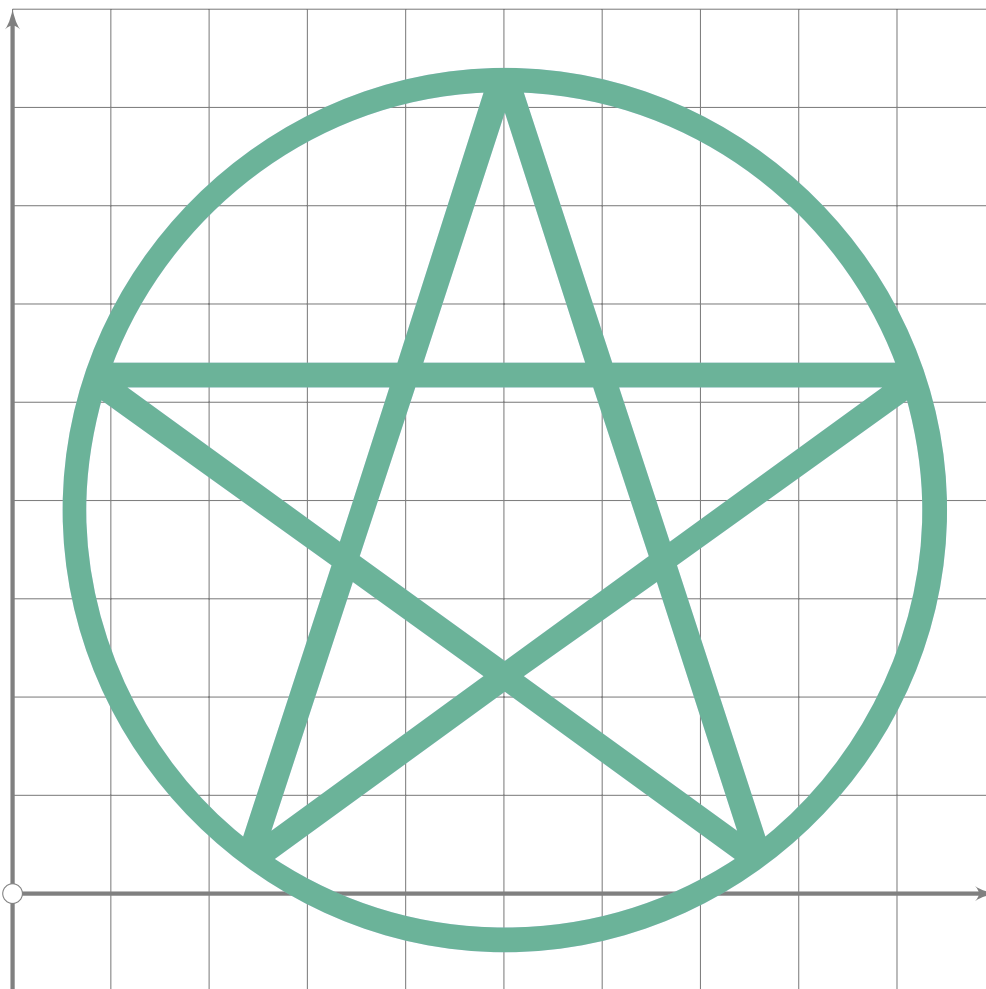
F5C

```

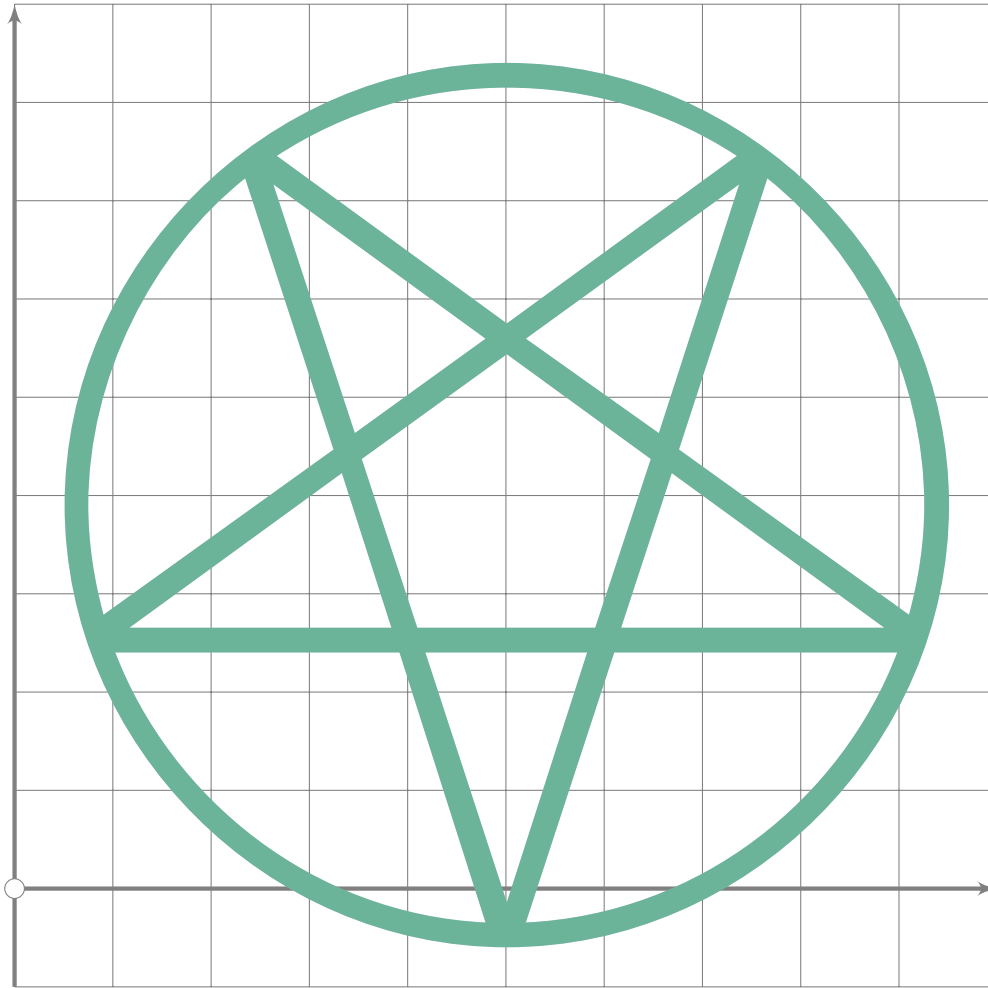
64
65 beginsuglyph("pentagram04";4);
66 default_nib:=fix_nib(20,20,0);
67 my_nib:=fix_nib(14,14,0);
68 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
69   (tipentagram rotated 90 scaled 844 shifted centre_pt);
70 endsuglyph;
```

U+F5C05
bll.pentagram05

F5C



```
71
72 begintsuglyph("pentagram05";5);
73 draw_stroked(25,0)(pentagram scaled 888 shifted centre_pt);
74 draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
75 endsuglyph;
```



F5C

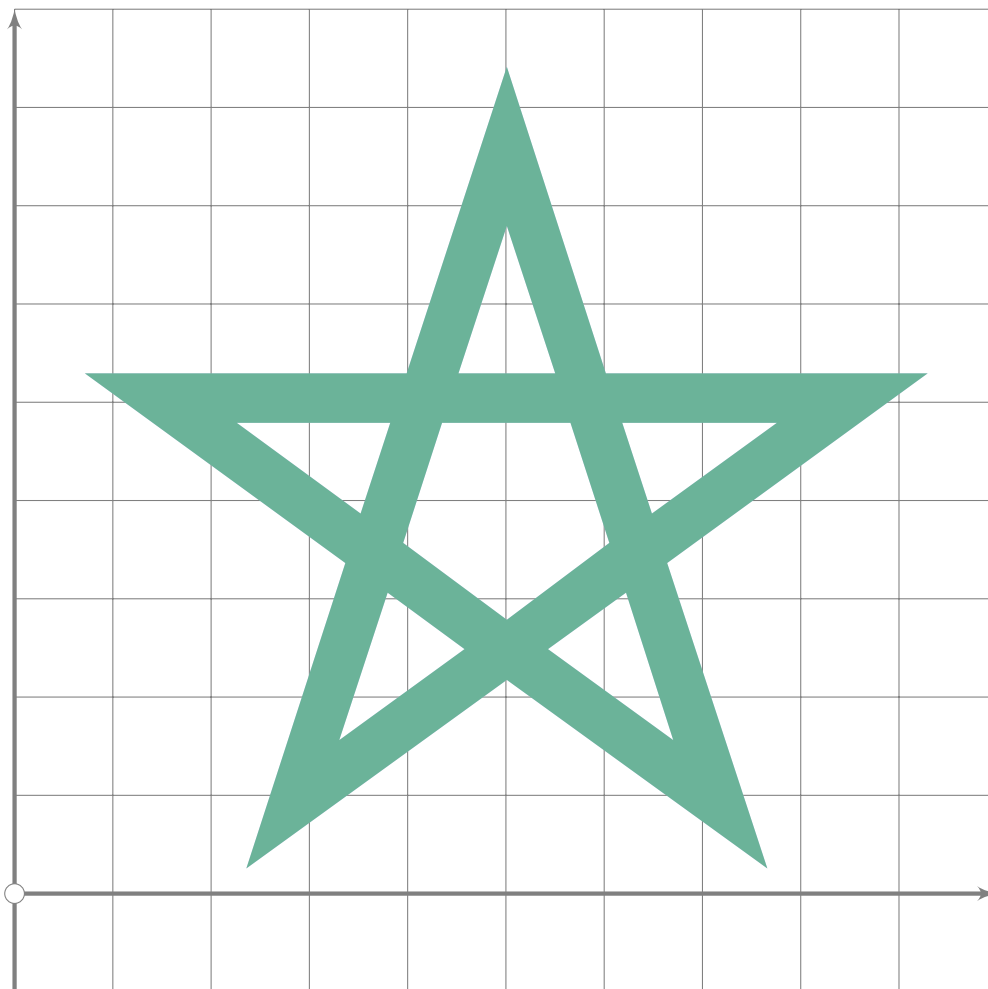
```

76
77 begintsuglyph("pentagram06",6);
78   draw_stroked(25,0)(pentagram rotated 180 scaled 888 shifted centre_pt);
79   draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
80 endsuglyph;

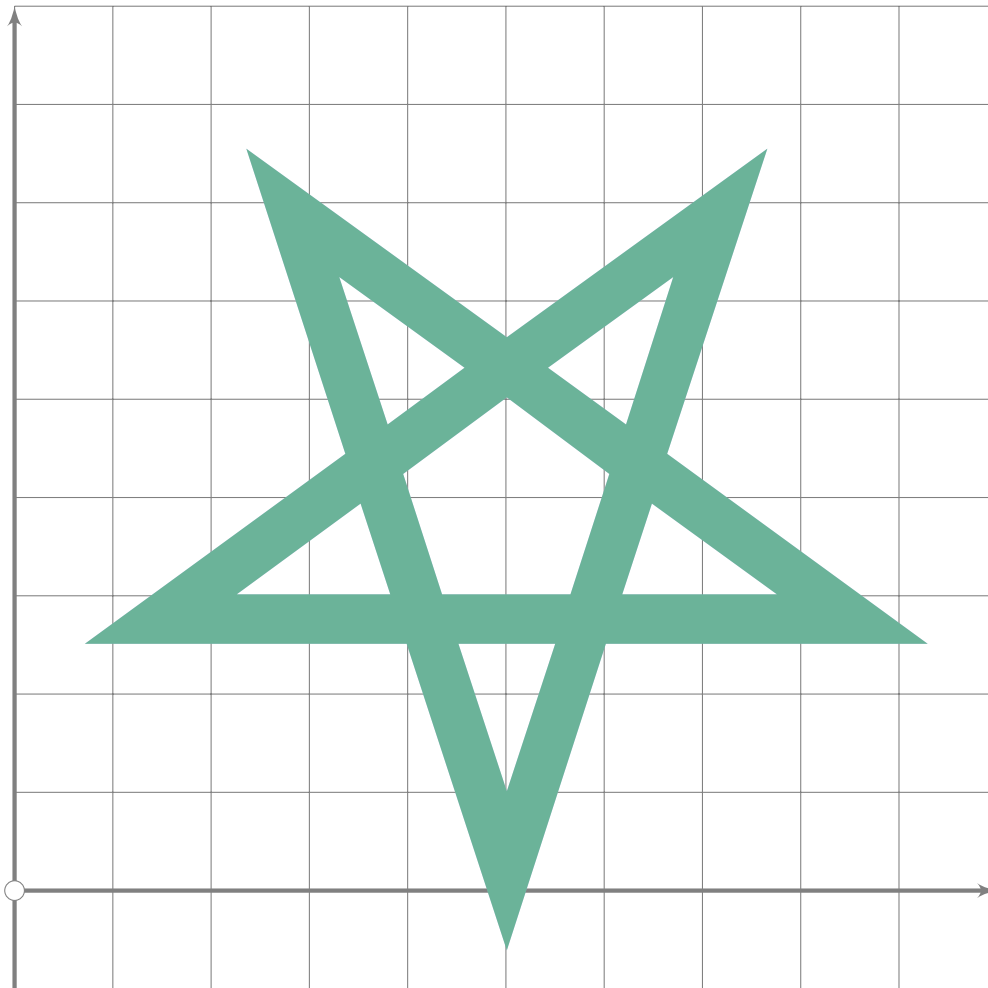
```

U+F5C07
bll.pentagram07

F5C



```
81  
82 begintsuglyph("pentagram07";7);  
83 draw_stroked(50,1)(pentagram scaled 740 shifted centre_pt);  
84 endtsuglyph;
```



F5C

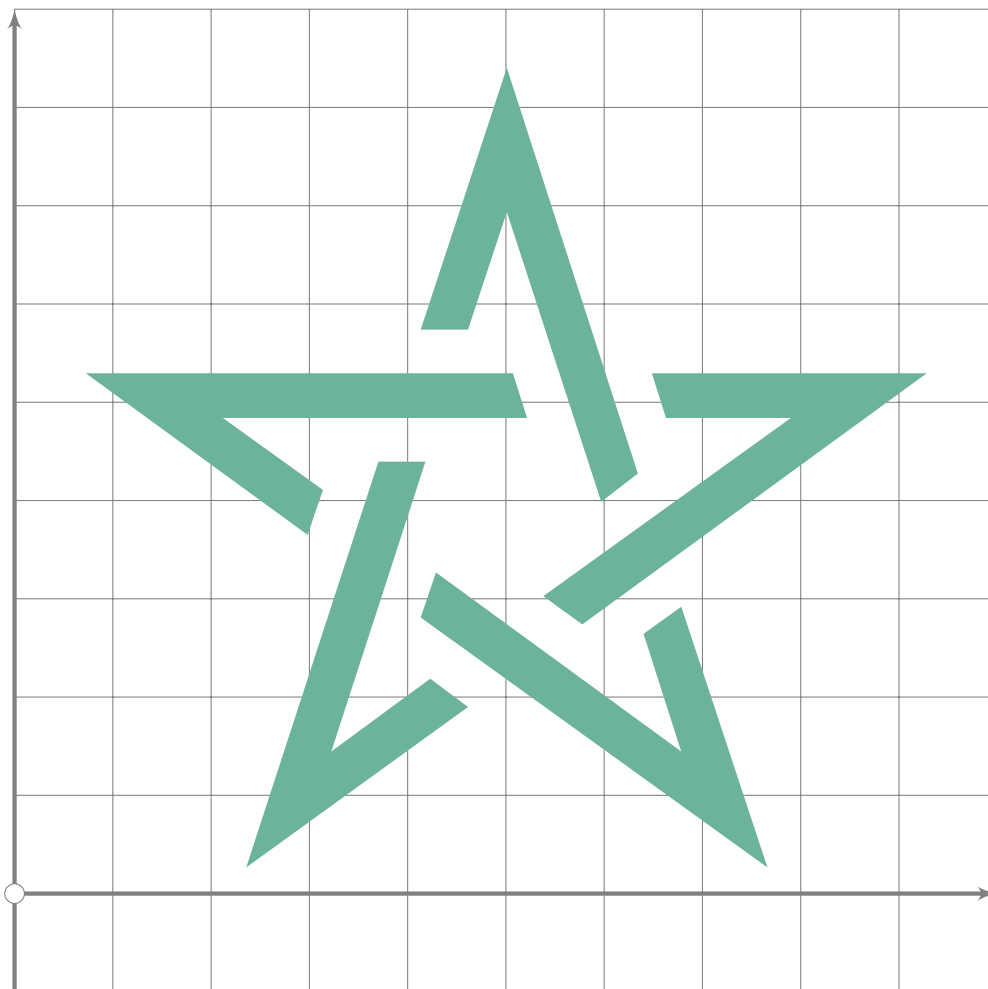
```

85
86 begintsuglyph("pentagram08";8);
87 draw_stroked(50,1)(pentagram rotated 180 scaled 740 shifted centre_pt);
88 endsuglyph;
89
90 vardef penta_ell(expr lw,loff) =
91   begingroup
92     save myl;
93     path myl[];
94     myl1:=(dir 90)–(dir 234);
95     myl2:=((dir 162)–(dir 18)) shifted (loff*dir 90);
96     myl3:=myl1 shifted (lw*dir 342);
97     myl6:=(dir 90)–(dir 306);
98     myl4:=myl6 shifted (lw*dir 198);
99     myl5:=((dir 18)–(dir 234)) shifted ((loff+lw)*dir 126);
100    (dir 90)–(myl6 intersectionpoint myl5)–
101      (myl5 intersectionpoint myl4)–(myl4 intersectionpoint myl3)–
102      (myl3 intersectionpoint myl2)–(myl2 intersectionpoint myl1)–cycle
103   endgroup
104 enddef;

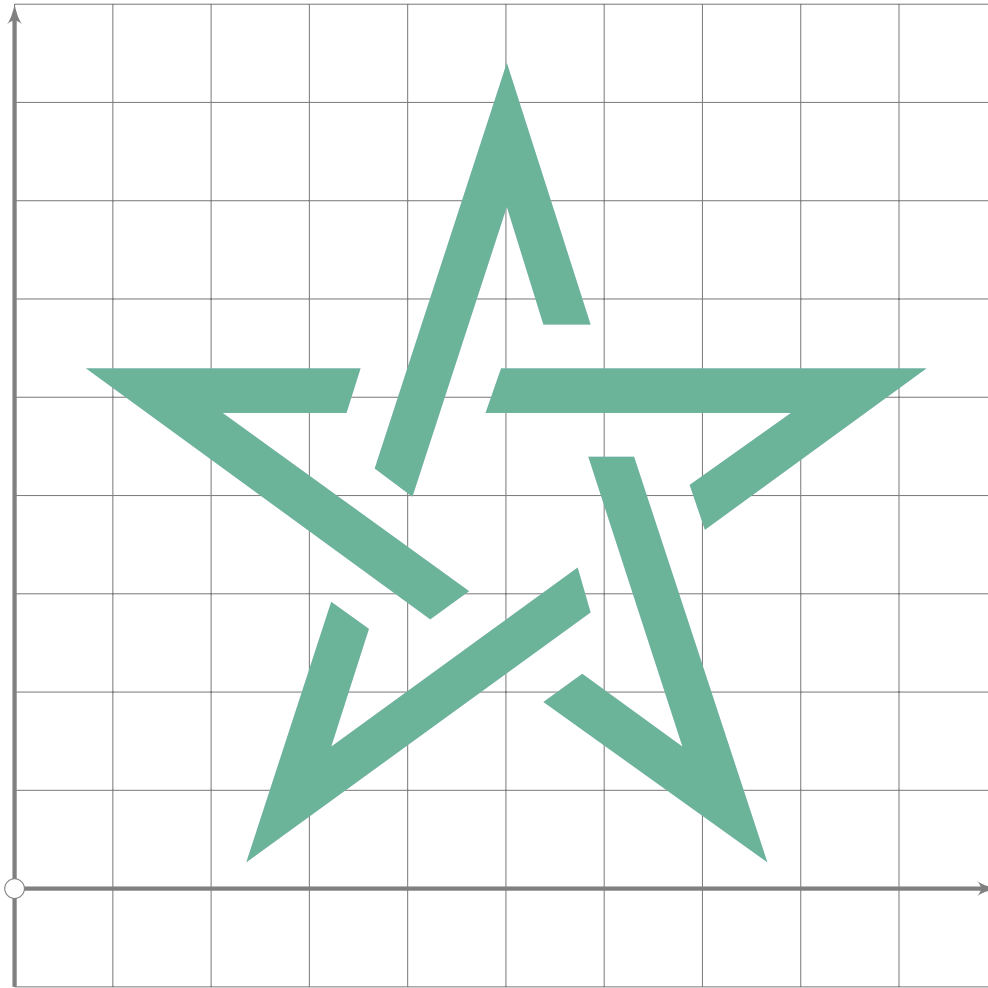
```

U+F5C09
bll.pentagram09

F5C



```
105
106 begint Suglyph("pentagram09";9);
107   my_path:=penta_ell(0.1,0.1);
108   for i:=0 upto 4:
109     dangerousFill my_path rotated (i*72) scaled 450 shifted centre_pt;
110   endfor;
111 endtsuglyph;
```



F5C

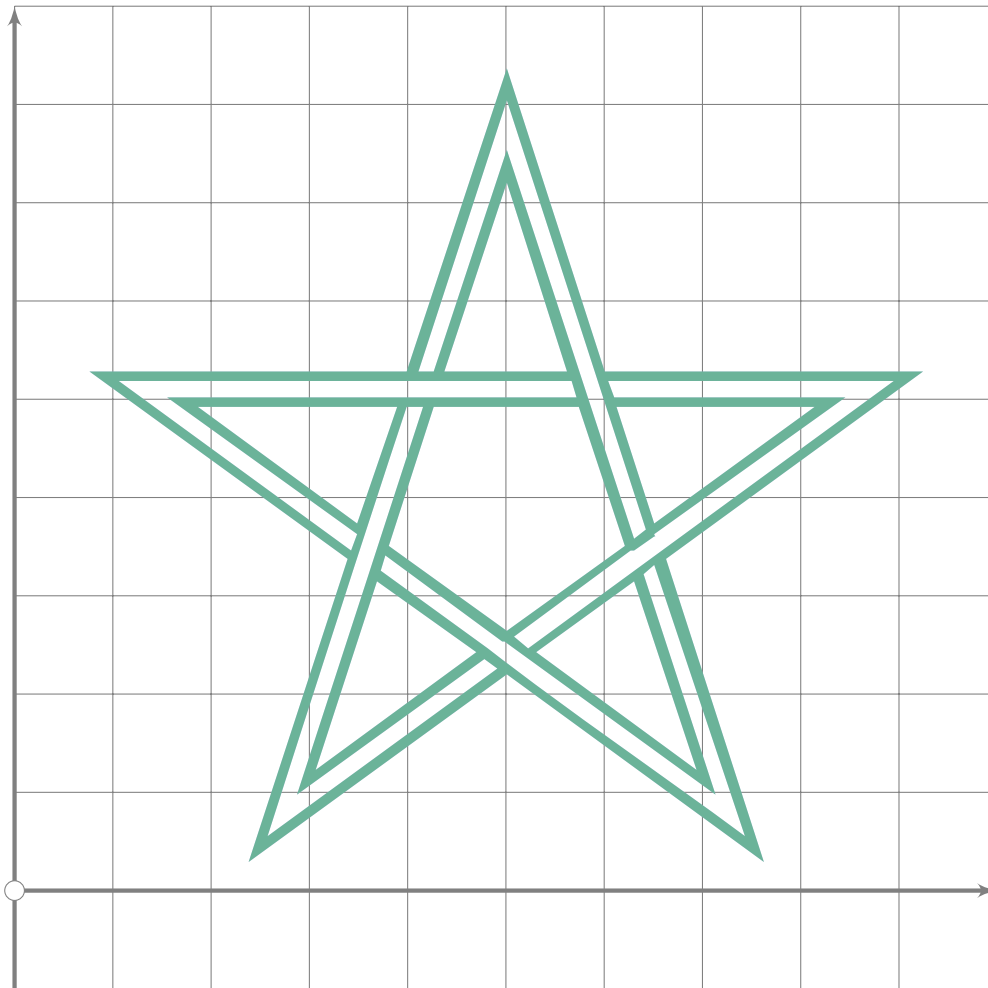
```

112
113 begintsuglyph("pentagram10",10);
114   my_path:=penta_ell(0.1,0.1);
115   for i:=0 upto 4:
116     dangerousFill my_path
117       reflectedabout (down,up) rotated (i*72) scaled 450 shifted centre_pt;
118   endfor;
119 endtsuglyph;

```

U+F5C0B
bll.pentagram11

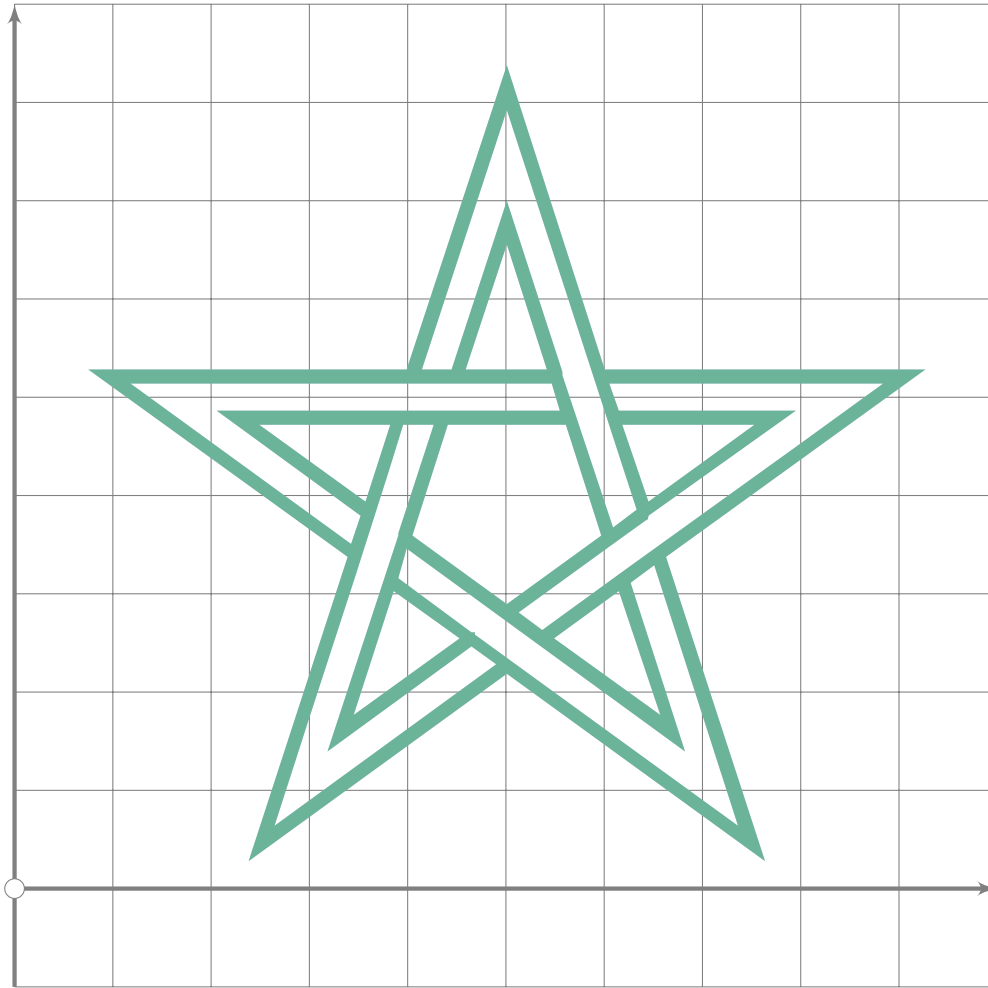
F5C



```

120
121 begintsuglyph("pentagram11",11);
122   begingroup
123     save lp;
124     path lp[];
125     my_path:=penta_ell(0.06,0);
126     lp1:=subpath (5,7) of my_path;
127     lp2:=subpath (2,4) of my_path;
128     default_nib:=fix_nib(10,10,0);
129     pen_stroke(tip(1)(1))(lp1 scaled 430 shifted centre_pt)(lp3);
130     pen_stroke(tip(1)(1))(lp2 scaled 430 shifted centre_pt)(lp4);
131     lp3:=regenerate(lp3);
132     lp4:=regenerate(lp4);
133     for i:=0 upto 4:
134       dangerousFill lp3 rotatedaround (centre_pt,i*72);
135       dangerousFill lp4 rotatedaround (centre_pt,i*72);
136     endfor;
137   endgroup;
138 endtsuglyph;

```



F5C

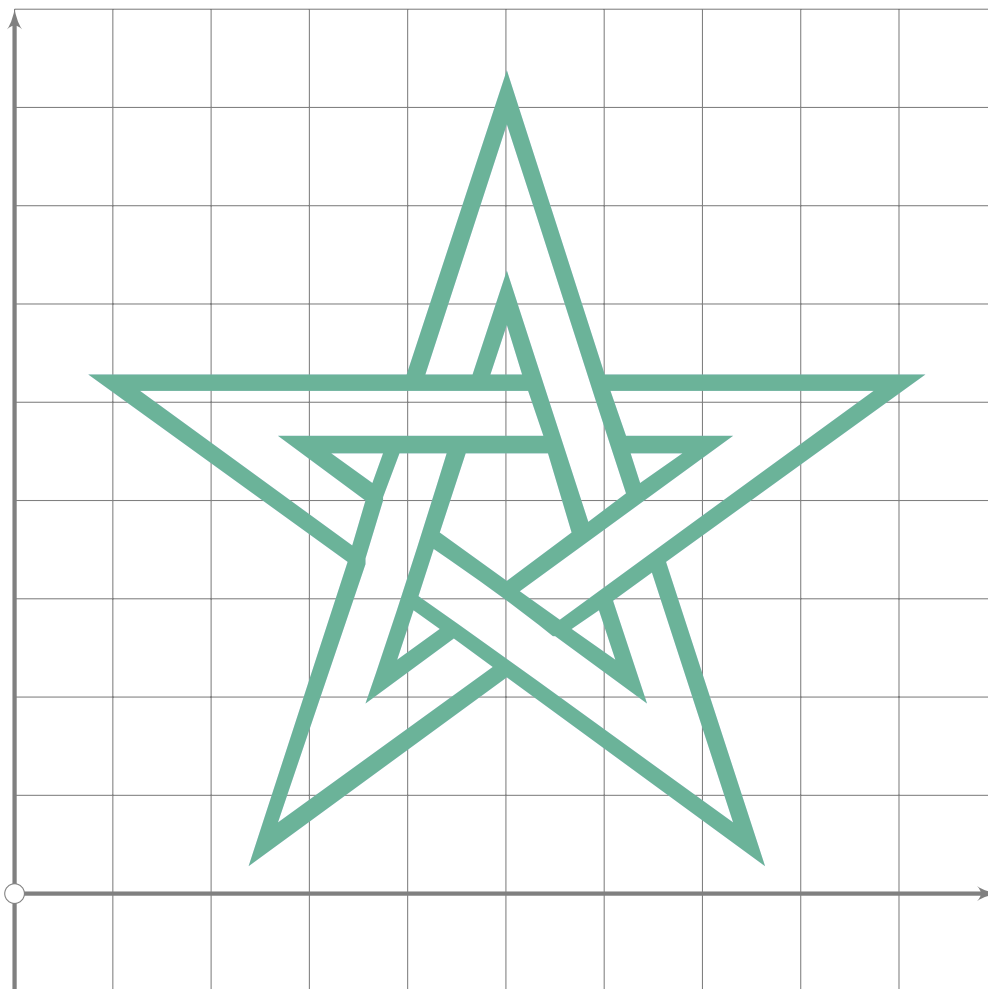
```

139
140 begintsuglyph("pentagram12",12);
141   begingroup
142     save lp;
143     path lp[];
144     my_path:=penta_ell(0.10,0);
145     lp1:=subpath (5,7) of my_path;
146     lp2:=subpath (2,4) of my_path;
147     default_nib:=fix_nib(14,14,0);
148     pen_stroke(tip(1)(1))(lp1 scaled 425 shifted centre_pt)(lp3);
149     pen_stroke(tip(1)(1))(lp2 scaled 425 shifted centre_pt)(lp4);
150     lp3:=regenerate(lp3);
151     lp4:=regenerate(lp4);
152     for i:=0 upto 4:
153       dangerousFill lp3 rotatedaround (centre_pt,i*72);
154       dangerousFill lp4 rotatedaround (centre_pt,i*72);
155     endfor;
156   endgroup;
157 endtsuglyph;

```

U+F5C0D
bll.pentagram13

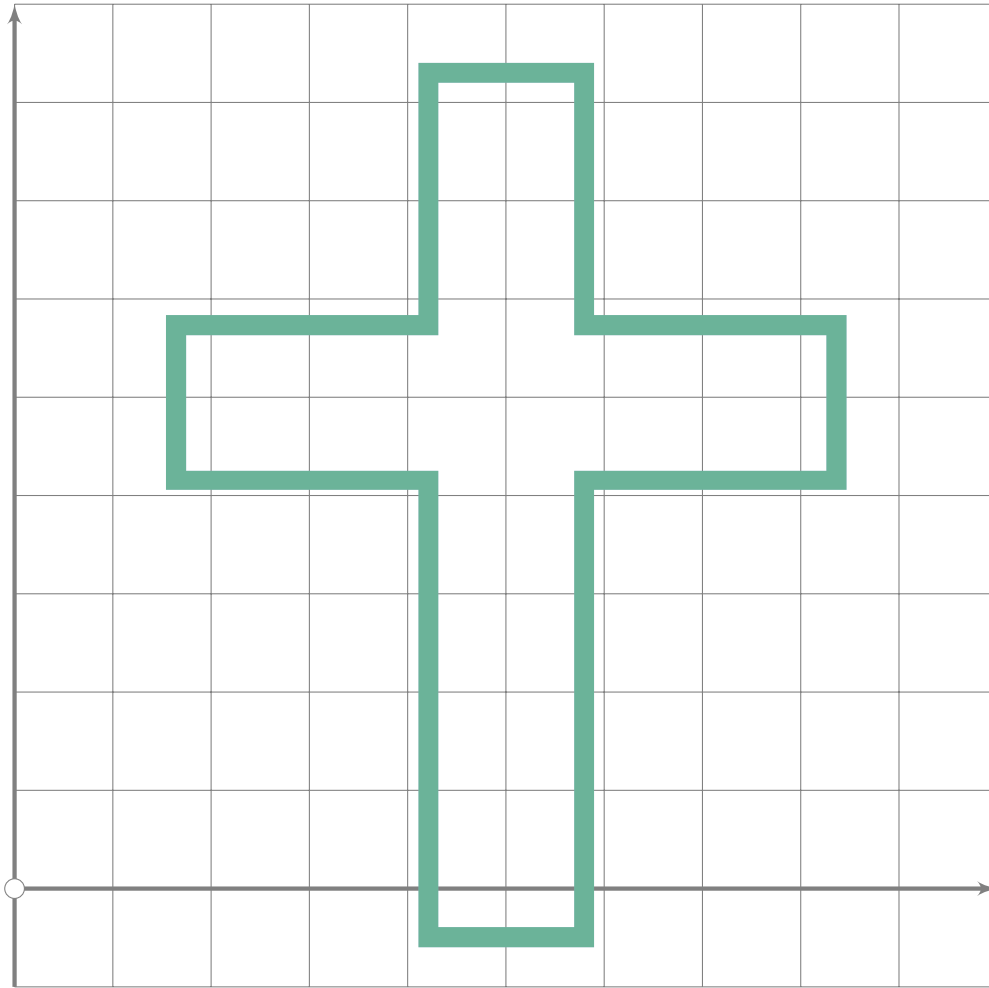
F5C



```

158
159 begintsuglyph("pentagram13",13);
160   begingroup
161     save lp;
162     path lp[];
163     my_path:=penta_ell(0.15,0);
164     lp1:=subpath (5,7) of my_path;
165     lp2:=subpath (2,4) of my_path;
166     default_nib:=fix_nib(17,17,0);
167     pen_stroke(tip(1)(1))(lp1 scaled 420 shifted centre_pt)(lp3);
168     pen_stroke(tip(1)(1))(lp2 scaled 420 shifted centre_pt)(lp4);
169     lp3:=regenerate(lp3);
170     lp4:=regenerate(lp4);
171     for i:=0 upto 4:
172       dangerousFill lp3 rotatedaround (centre_pt,i*72);
173       dangerousFill lp4 rotatedaround (centre_pt,i*72);
174     endfor;
175   endgroup;
176 endtsuglyph;
177
178

```

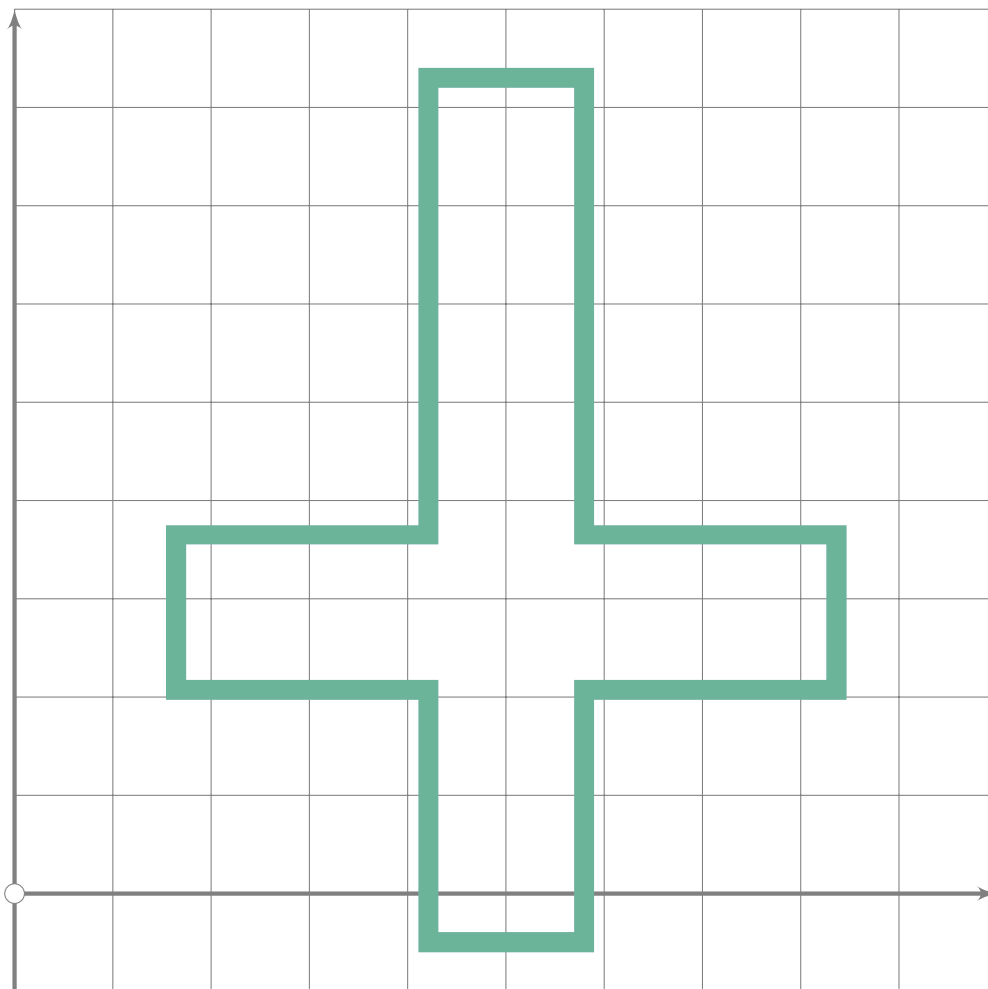


F5C

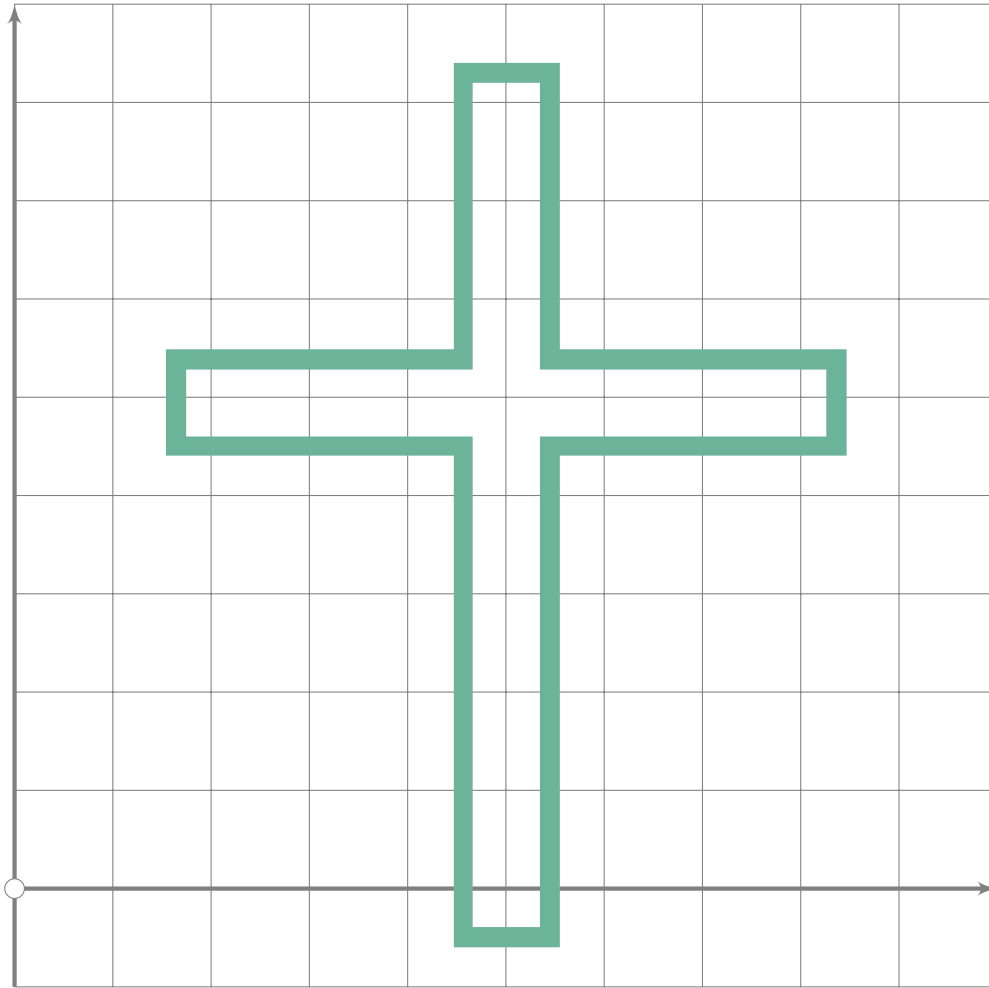
```
179
180 begint Suglyph("cross01";129);
181 draw_stroked(20,1)(cross_path(0.09) scaled 880 shifted centre_pt);
182 endtsuglyph;
```

U+F5C82
bll.cross02

F5C



```
183
184 beginsuglyph("cross02",130);
185   draw_stroked(20,1)(cross_path(0.09)
186     rotated 180 scaled 880 shifted centre_pt);
187 endsuglyph;
```

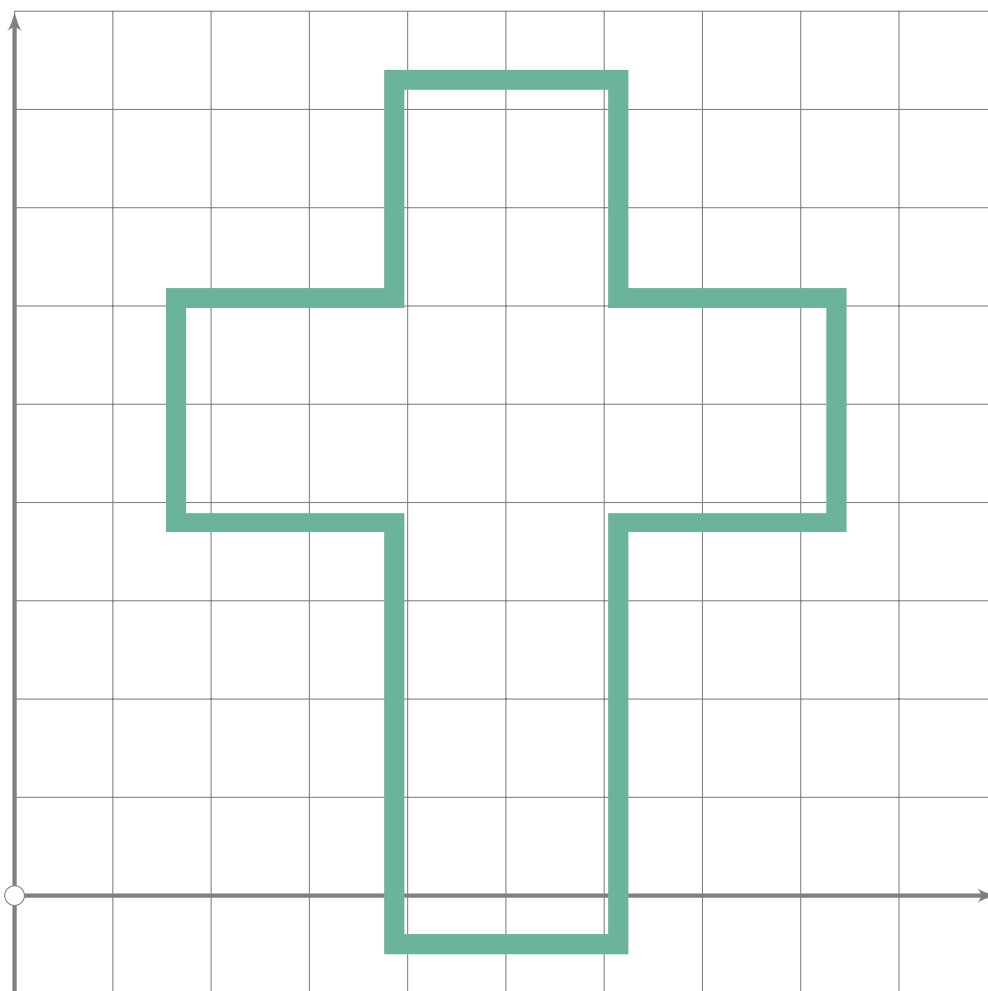


F5C

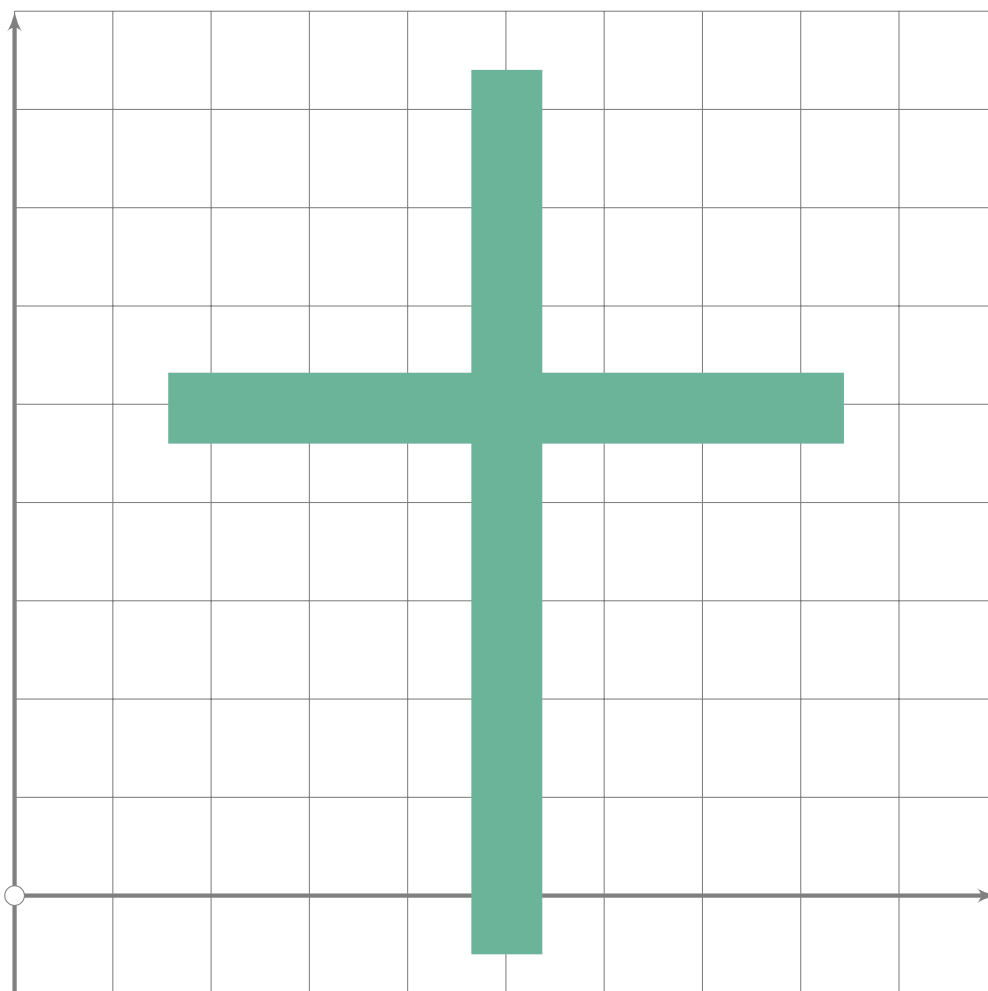
```
188
189 begintsuglyph("cross03",131);
190 draw_stroked(20,1)(cross_path(0.05) scaled 880 shifted centre_pt);
191 endtsuglyph;
```

U+F5C84
bll.cross04

F5C



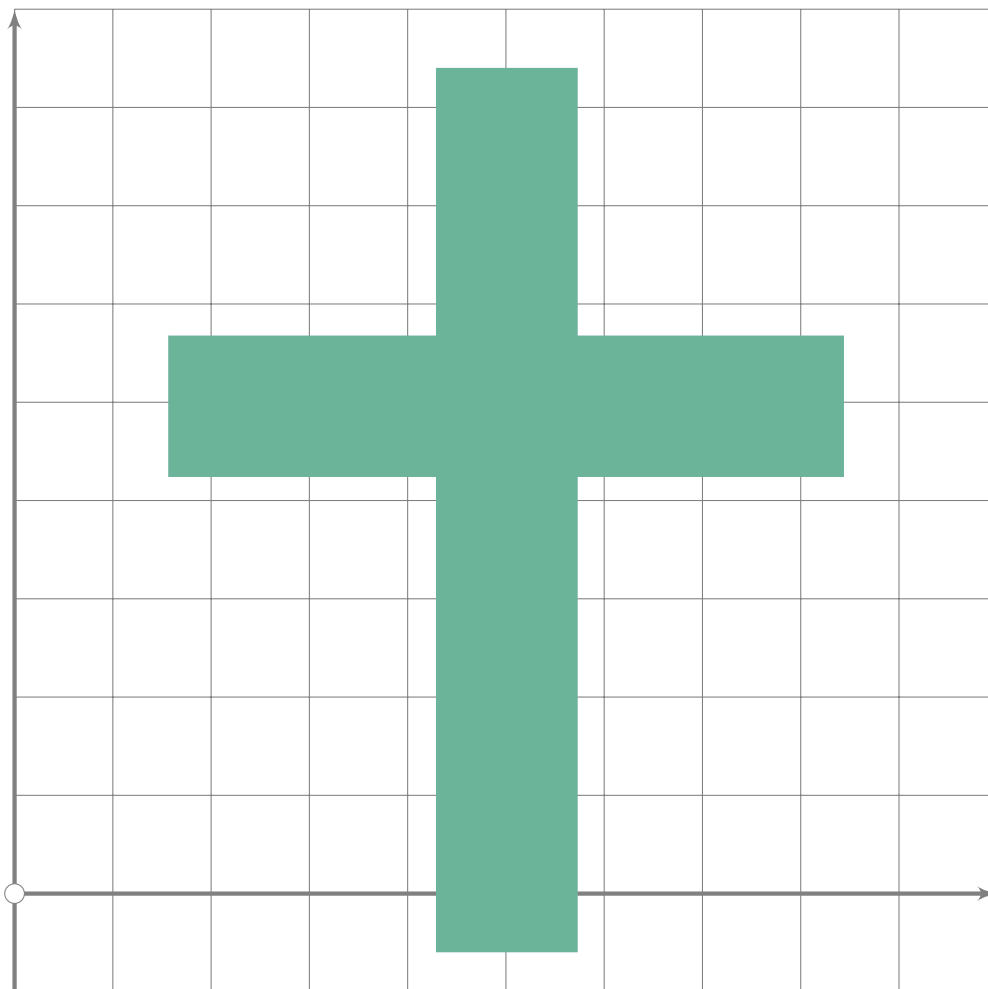
```
192  
193 begintsuglyph("cross04";132);  
194 draw_stroked(20,1)(cross_path(0.13) scaled 880 shifted centre_pt);  
195 endtsuglyph;
```



F5C

```
196
197 beginsuglyph("cross05",133);
198   dangerousFill cross_path(0.04) scaled 900 shifted centre_pt;
199 endsuglyph;
```

U+F5C86
bll.cross06



F5C

```
200
201 begintsuglyph("cross06",134);
202   dangerousFill cross_path(0.08) scaled 900 shifted centre_pt;
203 endsuglyph;
204
205 _____
206
207 endfont;
208
209 _____
```