INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

DUM téma: SurfCAM s tvorbou modelu – frézování 2D

ze sady: 2 tematický okruh sady: Příprava výroby a ruční programování CNC

ze šablony: 6 Příprava a zadání projektu

Určeno pro : 3 a 4 ročník

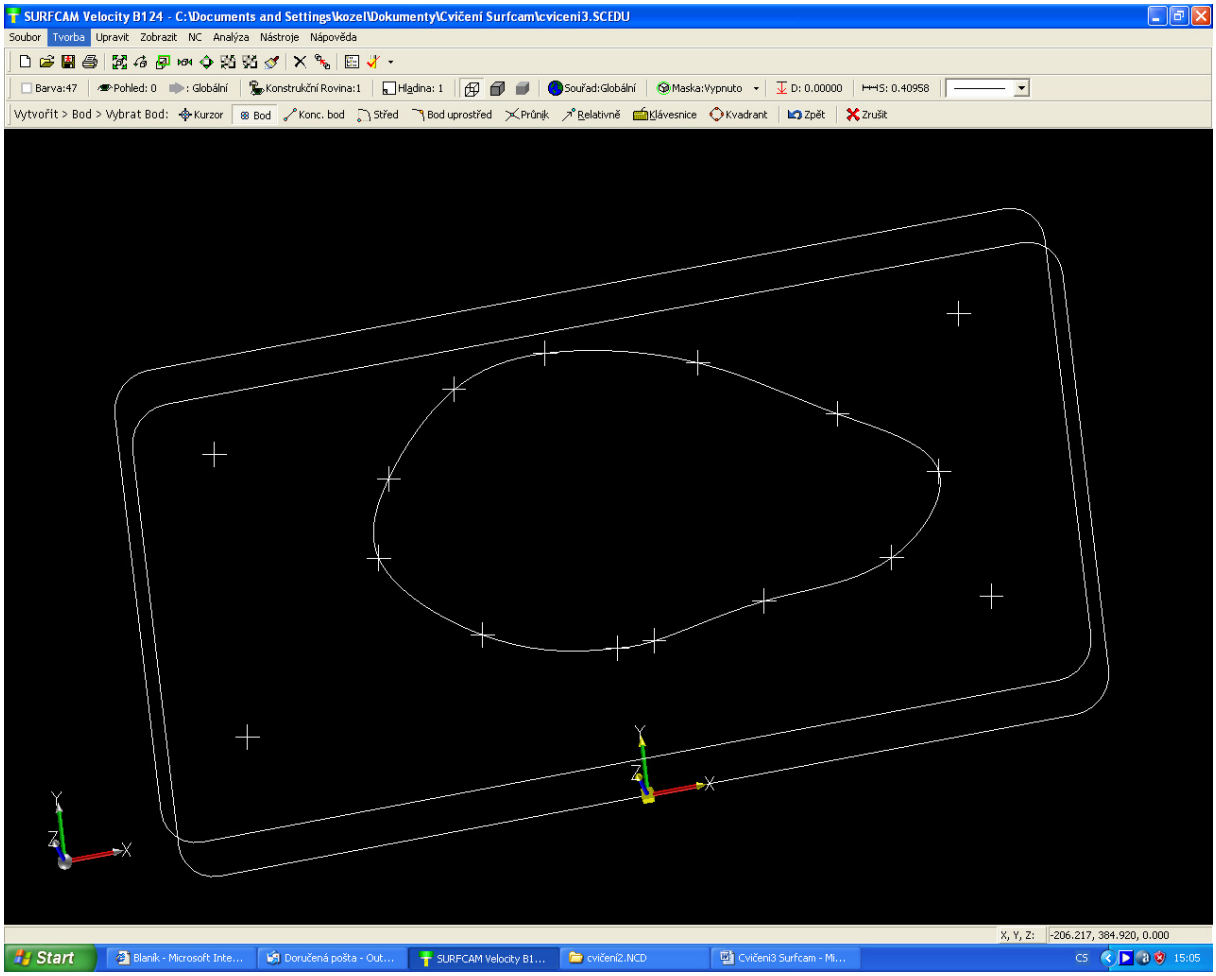
vzdělávací obor: 23-41-M/01 Strojírenství
Vzdělávací oblast: odborné vzdělávání

Metodický list/anotace: VY_32_INOVACE_06209ml.pdf

Zpracoval: Ing. Bohuslav Kozel
SPŠ a VOŠ Kladno

DUM 09
SurfCAM s tvorbou modelu – frézování 2D

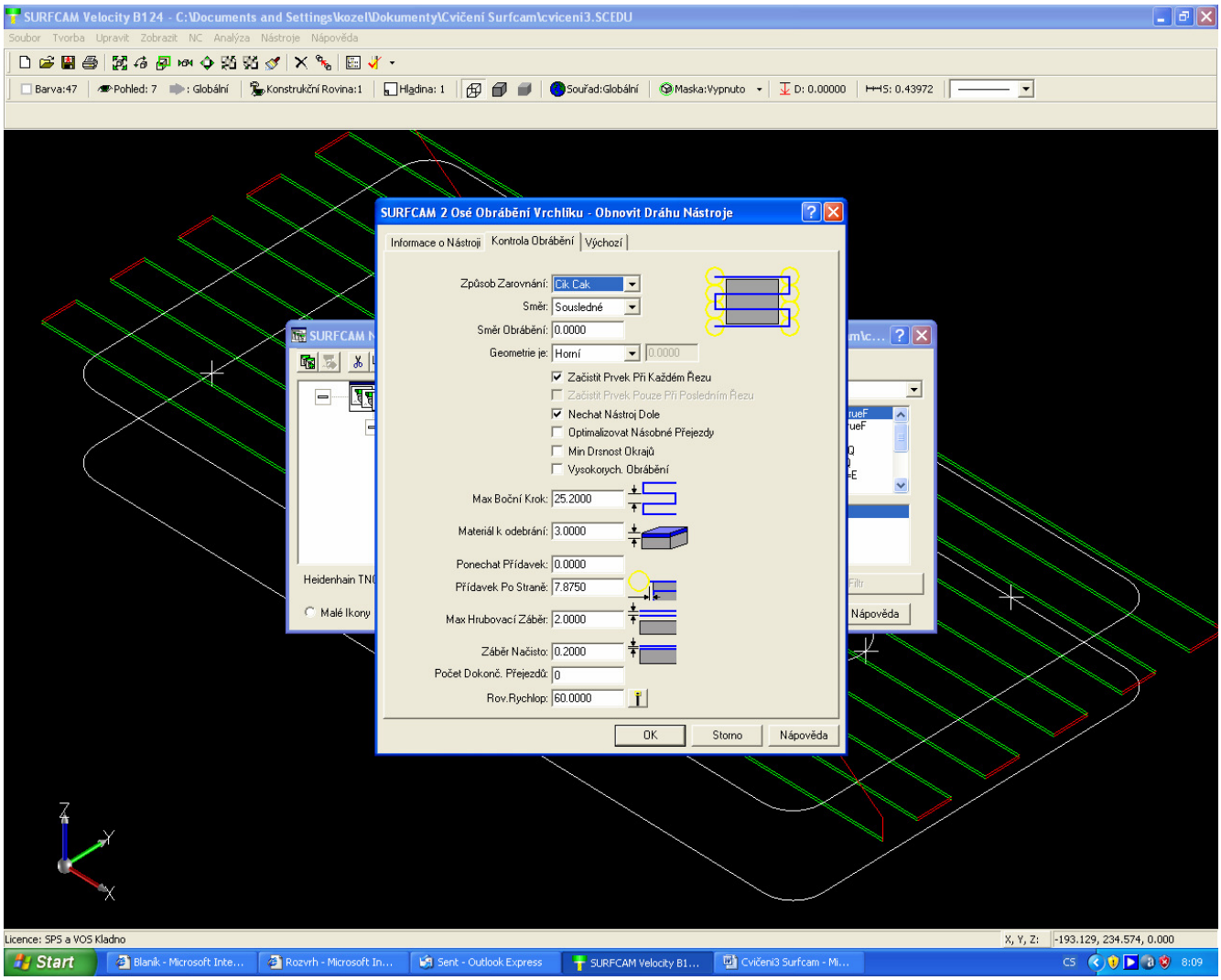
1. V prostředí Surfcam v konstrukční rovině 1 vytvořte obdélník o velikosti 500 x 250mm a zaoblete rohy. Vysuňte desku o 50mm. To bude rozměr hotové součásti. Vytvořte kvádr tak, aby nulový bod byl v uprostřed dole. Nakreslete 4 body symetricky v rozích na horní ploše. Vytvořte nepravidelný uzavřený tvar na horní ploše např. pomocí spline a posunutím o 50 mm. Pomozte si vytvořením pomocných bodů.



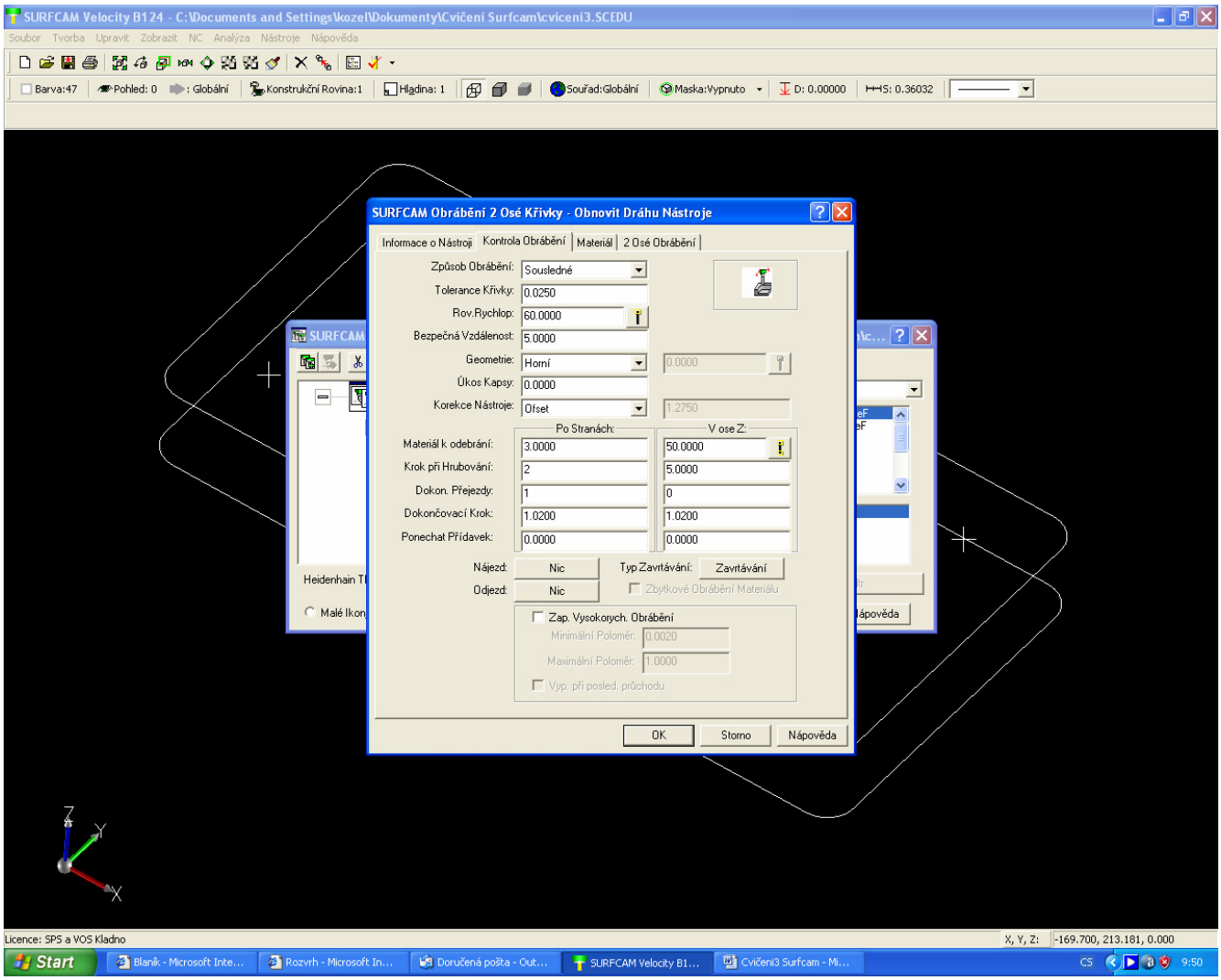
2. Provedeme tyto technologické operace
a. Velkou frézou zarovnání horního povrchu, přídavek je 3mm
b. Zarovnání kontury boků, výchozí polotovar má rozměry 506x256x53 mm
c. Kapsování nepravidelného tvaru do hloubky 20 mm

d. Vyvrtání a válcové zahloubení 4 otvorů v rozích

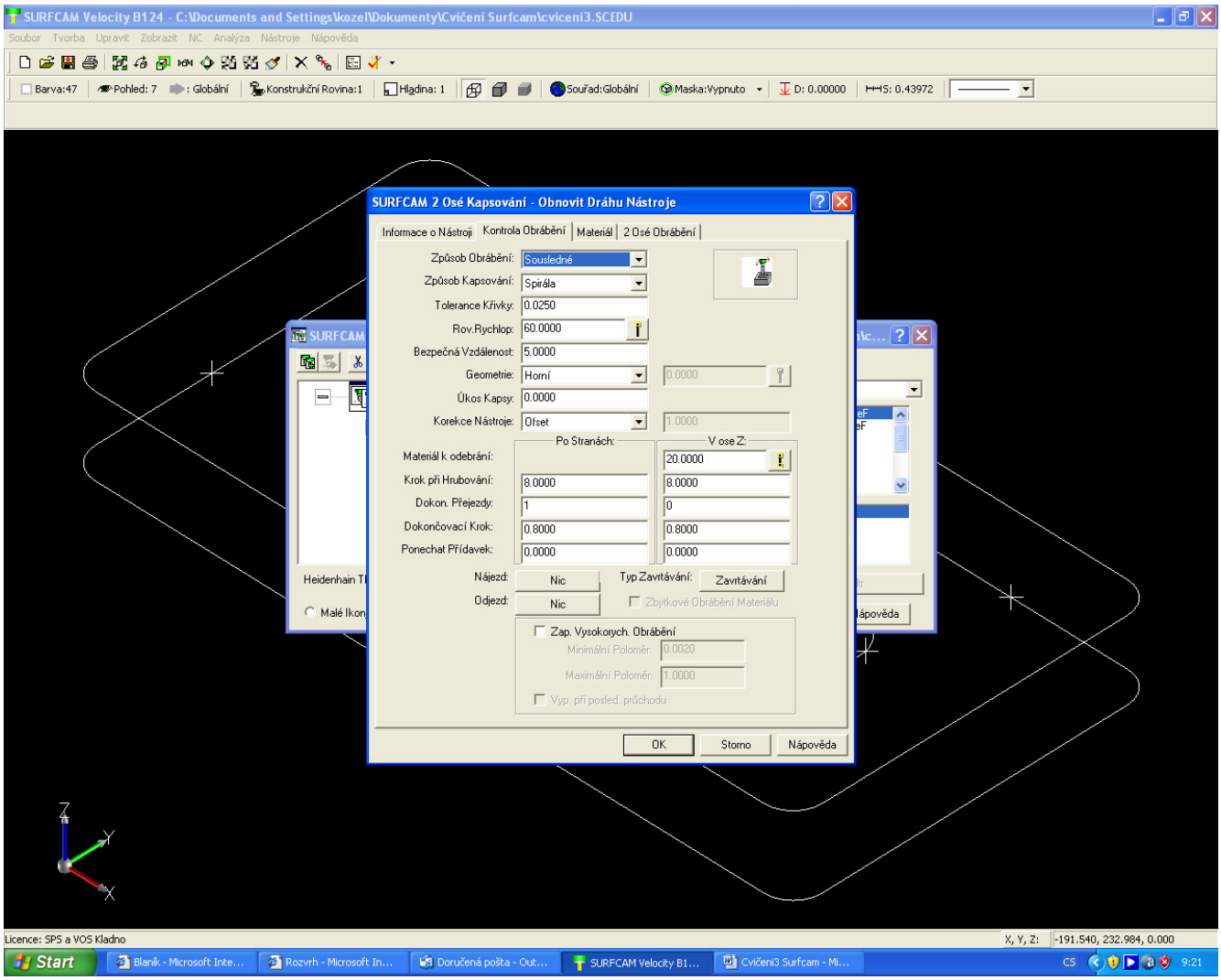
3. V NC menu volte 2D zarovnat, materiál k odebrání 3mm, hrubovací záběr např. 2mm, záběr na čisto 0.2mm



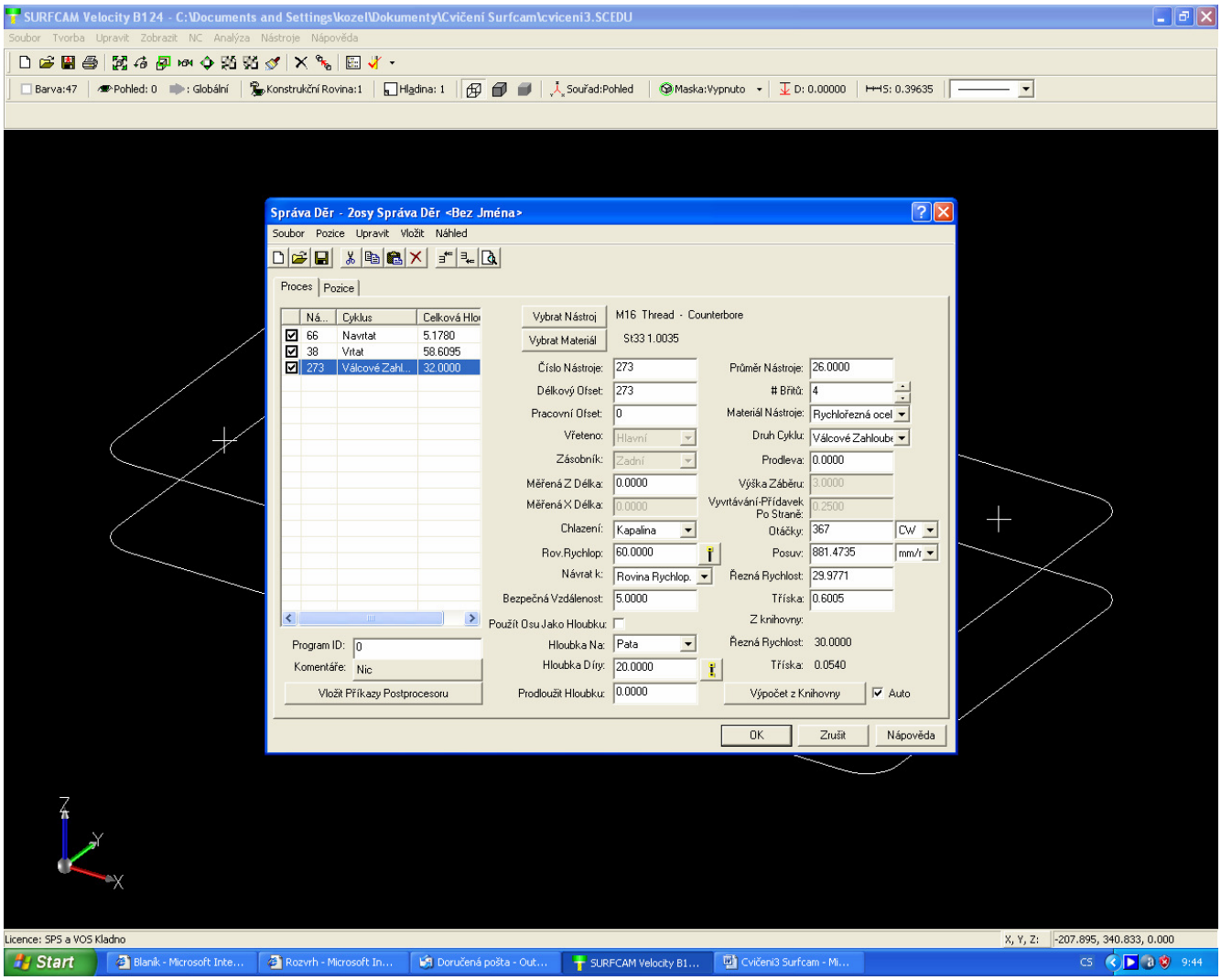
4. V NC menu volte kontura, volte kotoučovou frézu většího průměru, hloubku 50mm a šířku materiálu k odebrání 3mm. Výška kroku musí být menší než je výška frézy



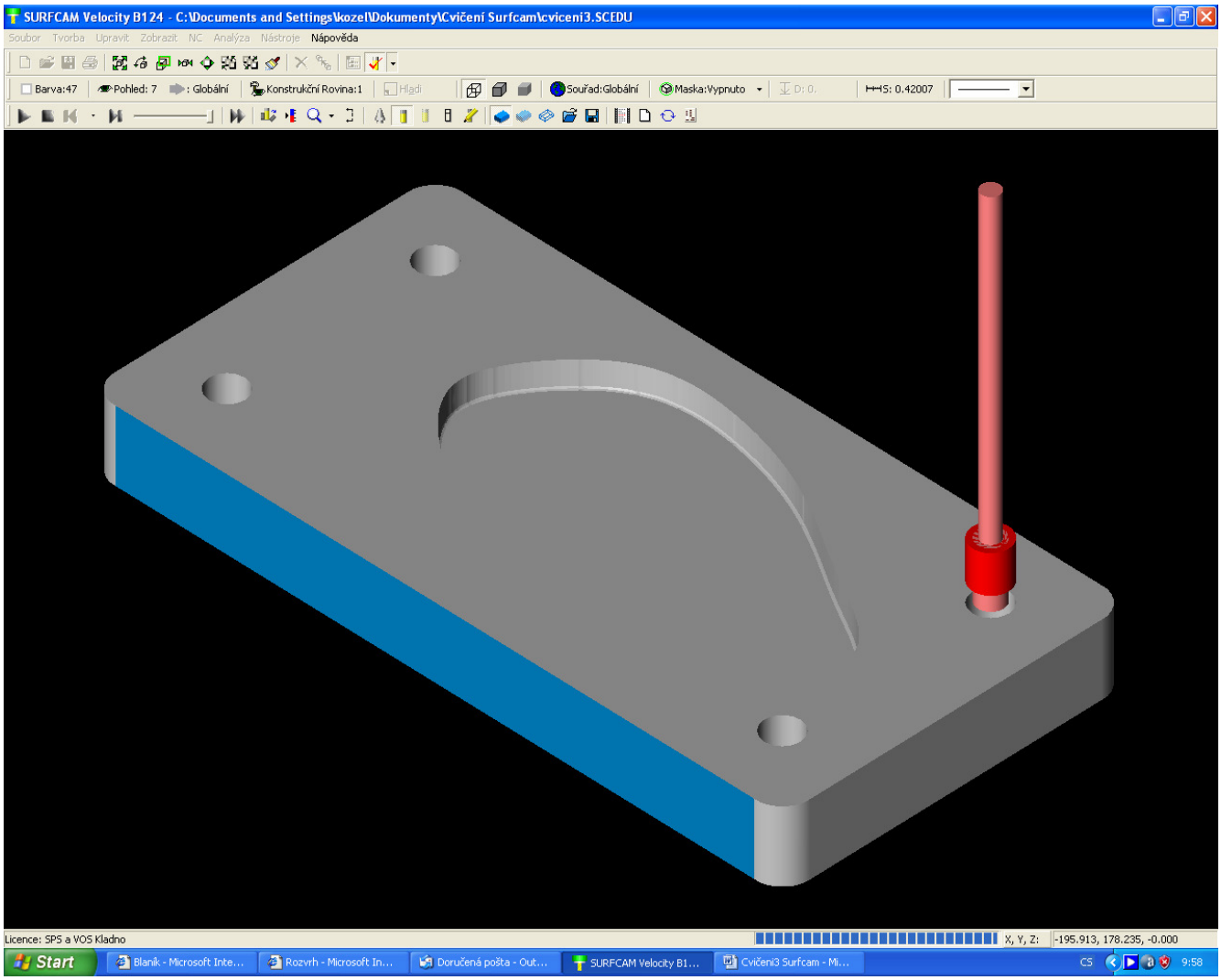
5. Nyní budeme kapsovat, tj. vytvářet nepravidelný otvor do hloubky 20mm. Při volbě frézy platí, že by se měla vejít do všech radiusů na křivce. Volte frézu s radiusem, tento rádius zůstane na obrobené ploše dole. Zadejte hloubku tj. osa z 20mm. Fréza by měla mít délku alespoň 20mm



6. Poslední operací bude vrtání a zahloubení 4 otvorů. Na horní ploše máme 4 symetrické body, které použijeme jako středy vrtaných otvorů. Díra bude skrz, zahloubení pro válcovou hlavu šroubu. Nejprve ale navrtat navrtávákem. Délka vrtáku by měla být alespoň 50mm



7. To je vše, co můžeme vytvořit v demo verzi. V ostré je dále možné verifikovat, tj. zobrazit prostorový model a vyjet 3 dokumenty, operační list, nástrojový list a vlastní NC program. První je uvedena verifikace, NC program má asi 40 stránek



OPERATIONS LIST

Date:	**Thu Mar 23 2006**
Time:	**09:53:52**
Output Filename:	**cviceni3.INC**

Tool Number	Operation	Plunge Rate	Feed Rate	Spindle Speed	Min X	Min Y	Min Z	Max X	Max Y	Max Z	Cycle Time
168	2 Osé Obrábìní Vrchlíku	132.629	265.26 mm/min	354 ot/min	-289.3750	22.6250	47.0000	289.3750	257.0568	60.0000	0:48:0
343	2 Osé Obrábìní Kontury	148.295	296.59 mm/min	374 ot/min	-263.7700	-13.7700	0.0000	263.7700	263.7700	60.0000	1:44:56
416	2 Osé Kapsování	120.321	240.64 mm/min	477 ot/min	-111.4461	69.3418	30.0000	170.2646	210.2306	60.0000	0:55:46
66	2osy Správa Dìr	-	412.53 mm/min	3820 ot/min	-200.0000	50.0000	44.8220	200.0000	200.0000	60.0000	0:0:11
38	2osy Správa Dìr	-	183.35 mm/min	477 ot/min	-200.0000	50.0000	-8.6095	200.0000	200.0000	60.0000	0:1:31
273	2osy Správa Dìr	-	881.47 mm/min	367 ot/min	-200.0000	50.0000	18.0000	200.0000	200.0000	60.0000	0:0:17

Overall	- 289.3750	- 13.7700	-8.6095	289.3750	263.7700	60.0000	3:30:45

Operation Number	Tool Number	Comments	
1	168	**Operation Comments:**	-
		Tool Comments:	63mm dia - 5 flt - Carbide Insert Mill
2	343	**Operation Comments:**	-
		Tool Comments:	25.5mm dia - 6.0mm flute - Keycutter
3	416	**Operation Comments:**	-
		Tool Comments:	20mm dia - 1.5mm rad - Bullmill
4	66	**Operation Comments:**	-
		Tool Comments:	2.50mm Center Drill - HSS
5	38	**Operation Comments:**	-
		Tool Comments:	20.0mm HSS Drill
6	273	**Operation Comments:**	-

TOOLING LIST

Date:	**Thu Mar 23 2006**
Time:	**09:53:52**
Output Filename:	**cviceni3.INC**

Description:	**63mm dia - 5 flt - Carbide Insert Mill**
Tool Number:	**168**
Length Register:	**168**
Diameter Register:	**168**
Diameter:	**63.0000**
Corner Radius:	**1.0000**
Flute Length:	**10.0000**
Total Length:	**63.0000**
Number of Flutes:	**5**

Description:	**25.5mm dia - 6.0mm flute - Keycutter**

Diameter Register:	**343**
Diameter:	**25.5000**
Corner Radius:	**0.0000**
Flute Length:	**6.0000**
Total Length:	**60.0000**
Number of Flutes:	**12**
Program Point:	**Hrot**

Description:	**20mm dia - 1.5mm rad - Bullmill**
Tool Number:	**416**
Length Register:	**416**
Diameter Register:	**416**
Diameter:	**20.0000**
Corner Radius:	**1.5000**
Flute Length:	**30.0000**
Total Length:	**70.0000**
Number of Flutes:	**4**

Description:	**2.50mm Center Drill - HSS**
Tool Number:	**66**
Length Register:	**66**
Diameter:	**2.5000**
Tip Angle:	**118.0000**
Flute Length:	**2.5000**
Total Length:	**46.0000**
Number of Flutes:	**2**

Description:	**20.0mm HSS Drill**

Length Register:	**38**
Diameter:	**20.0000**
Tip Angle:	**118.0000**
Flute Length:	**50.0000**
Total Length:	**260.0000**
Number of Flutes:	**2**
Program Point:	**Hrot**

Description:	**M16 Thread - Counterbore**
Tool Number:	**273**
Length Register:	**273**
Diameter:	**26.0000**
Tip Angle:	**0.0000**
Flute Length:	**25.0000**
Total Length:	**228.6000**
Number of Flutes:	**4**

```
0 BEGIN PGM cviceni3Nastavení_Jedna MM
1 ; POZOR! Byly nalezeny rychloposuvy nad materialem v jine nez prvotni (Z60)
rovine rychloposuvu!
2 ; -- DEFINICE POLOTOVARU
3 BLK FORM 0.1 Z X-289.375 Y-13.77 Z0
4 BLK FORM 0.2 X289.375 Y263.77 Z48.5
5 ; -- DEFINICE CYKLU PRO PLYNULE PRUJEZDY
6 CYCL DEF 32.0 TOLERANCE
7 CYCL DEF 32.1 T0.04
8 ; -- SEZNAM NASTROJU POUZITYCH V TOMTO PROGRAMU
9 ; T168  FREZA CELNI - PRUM 63./ ROHOVY RADIUS 1.
10 ; T343  FREZA KOTOUCOVA - PRUM 25.5/ ROHOVY RADIUS 0
11 ; T416  FREZA CTVRTKOVA - PRUM 20./ ROHOVY RADIUS 1.5
12 ; T66  NAVRTAVACEK - PRUM 2.5
13 ; T38  VRTAK - PRUM 20.
14 ; T273  VALCOVY ZAHLUBNIK - PRUM 26.
15 ; -- KONEC SEZNAMU --
16 M78 ;(TEPELNA KOMPENZACE)
17 ; T168  FREZA CELNI - PRUM 63./ ROHOVY RADIUS 1.
18 ; -- DEFINICE POSUVU PRO NASTROJ
19 FN 0: Q1 = 132.6291 ;(ZAPICHOVACI POSUV)
20 FN 0: Q2 = 265.2582 ;(PRACOVNI POSUV)
21 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
```

```
22 TOOL CALL 168 Z S354
23 L M6
24 L Z+60. R0 FMAX M8
25 L X-282.852 Y+257.057 FMAX M3
26 L Z+48.5 FMAX
27 Q22 = Q2*1.
28 FQ22
29 L X+282.852
30 L X+289.265 FMAX
31 L Y+233.614 FMAX
32 L X-289.265
33 L X-289.375 FMAX
34 L Y+210.171 FMAX
35 L X+289.375
36 L Y+186.727 FMAX
37 L X-289.375
38 L Y+163.284 FMAX
39 L X+289.375
40 L Y+139.841 FMAX
41 L X-289.375
42 L Y+116.398 FMAX
43 L X+289.375
44 L Y+92.955 FMAX
45 L X-289.375
46 L Y+69.511 FMAX
47 L X+289.375
48 L Y+46.068 FMAX
49 L X-289.375
50 L Y+22.625 FMAX
51 L X+289.375
52 L Z+60. FMAX
53 L X-282.852 Y+257.057 FMAX
54 L Z+47. FMAX
55 L X+282.852
56 L X+289.265 FMAX
57 L Y+233.614 FMAX
58 L X-289.265
59 L X-289.375 FMAX
60 L Y+210.171 FMAX
61 L X+289.375
62 L Y+186.727 FMAX
63 L X-289.375
64 L Y+163.284 FMAX
65 L X+289.375
66 L Y+139.841 FMAX
67 L X-289.375
68 L Y+116.398 FMAX
69 L X+289.375
70 L Y+92.955 FMAX
71 L X-289.375
72 L Y+69.511 FMAX
73 L X+289.375
74 L Y+46.068 FMAX
75 L X-289.375
76 L Y+22.625 FMAX
77 L X+289.375
78 L Z+60. FMAX
79 L Z+60. R0 FMAX
80 M9
81 ; T343  FREZA KOTOUCOVA - PRUM 25.5/ ROHOVY RADIUS 0
82 ; -- DEFINICE POSUVU PRO NASTROJ
83 FN 0: Q1 = 148.295 ;(ZAPICHOVACI POSUV)
84 FN 0: Q2 = 296.5899 ;(PRACOVNI POSUV)
85 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
86 TOOL CALL 343 Z S374
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```
87 L M6
88 L Z+60. R0 FMAX M8
89 L X-230. Y-13.77 FMAX M3
90 L Z+55. FMAX
91 FQ1
92 L Z+45.
93 Q22 = Q2*1.
94 FQ22
95 CC X-230. Y+20.
96 C X-263.77 Y+20. DR-
97 L X-263.77 Y+230.
98 CC X-230. Y+230.
99 C X-230. Y+263.77 DR-
100 L X+230. Y+263.77
101 CC X+230. Y+230.
102 C X+263.77 Y+230. DR-
103 L X+263.77 Y+20.
104 CC X+230. Y+20.
105 C X+230. Y-13.77 DR-
106 L X-230. Y-13.77
107 L Y-12.75
108 CC X-230. Y+20.
109 C X-262.75 Y+20. DR-
110 L X-262.75 Y+230.
111 CC X-230. Y+230.
112 C X-230. Y+262.75 DR-
113 L X+230. Y+262.75
114 CC X+230. Y+230.
115 C X+262.75 Y+230. DR-
116 L X+262.75 Y+20.
117 CC X+230. Y+20.
118 C X+230. Y-12.75 DR-
119 L X-230. Y-12.75
120 L Y-13.77
121 FQ1
122 L Z+40.
123 Q22 = Q2*1.
124 FQ22
125 CC X-230. Y+20.
126 C X-263.77 Y+20. DR-
127 L X-263.77 Y+230.
128 CC X-230. Y+230.
129 C X-230. Y+263.77 DR-
130 L X+230. Y+263.77
131 CC X+230. Y+230.
132 C X+263.77 Y+230. DR-
133 L X+263.77 Y+20.
134 CC X+230. Y+20.
135 C X+230. Y-13.77 DR-
136 L X-230. Y-13.77
137 L Y-12.75
138 CC X-230. Y+20.
139 C X-262.75 Y+20. DR-
140 L X-262.75 Y+230.
141 CC X-230. Y+230.
142 C X-230. Y+262.75 DR-
143 L X+230. Y+262.75
144 CC X+230. Y+230.
145 C X+262.75 Y+230. DR-
146 L X+262.75 Y+20.
147 CC X+230. Y+20.
148 C X+230. Y-12.75 DR-
149 L X-230. Y-12.75
150 L Y-13.77
151 FQ1
```

```
152 L Z+35.
153 Q22 = Q2*1.
154 FQ22
155 CC X-230. Y+20.
156 C X-263.77 Y+20. DR-
157 L X-263.77 Y+230.
158 CC X-230. Y+230.
159 C X-230. Y+263.77 DR-
160 L X+230. Y+263.77
161 CC X+230. Y+230.
162 C X+263.77 Y+230. DR-
163 L X+263.77 Y+20.
164 CC X+230. Y+20.
165 C X+230. Y-13.77 DR-
166 L X-230. Y-13.77
167 L Y-12.75
168 CC X-230. Y+20.
169 C X-262.75 Y+20. DR-
170 L X-262.75 Y+230.
171 CC X-230. Y+230.
172 C X-230. Y+262.75 DR-
173 L X+230. Y+262.75
174 CC X+230. Y+230.
175 C X+262.75 Y+230. DR-
176 L X+262.75 Y+20.
177 CC X+230. Y+20.
178 C X+230. Y-12.75 DR-
179 L X-230. Y-12.75
180 L Y-13.77
181 FQ1
182 L Z+30.
183 Q22 = Q2*1.
184 FQ22
185 CC X-230. Y+20.
186 C X-263.77 Y+20. DR-
187 L X-263.77 Y+230.
188 CC X-230. Y+230.
189 C X-230. Y+263.77 DR-
190 L X+230. Y+263.77
191 CC X+230. Y+230.
192 C X+263.77 Y+230. DR-
193 L X+263.77 Y+20.
194 CC X+230. Y+20.
195 C X+230. Y-13.77 DR-
196 L X-230. Y-13.77
197 L Y-12.75
198 CC X-230. Y+20.
199 C X-262.75 Y+20. DR-
200 L X-262.75 Y+230.
201 CC X-230. Y+230.
202 C X-230. Y+262.75 DR-
203 L X+230. Y+262.75
204 CC X+230. Y+230.
205 C X+262.75 Y+230. DR-
206 L X+262.75 Y+20.
207 CC X+230. Y+20.
208 C X+230. Y-12.75 DR-
209 L X-230. Y-12.75
210 L Y-13.77
211 FQ1
212 L Z+25.
213 Q22 = Q2*1.
214 FQ22
215 CC X-230. Y+20.
216 C X-263.77 Y+20. DR-
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217 L X-263.77 Y+230.
218 CC X-230. Y+230.
219 C X-230. Y+263.77 DR-
220 L X+230. Y+263.77
221 CC X+230. Y+230.
222 C X+263.77 Y+230. DR-
223 L X+263.77 Y+20.
224 CC X+230. Y+20.
225 C X+230. Y-13.77 DR-
226 L X-230. Y-13.77
227 L Y-12.75
228 CC X-230. Y+20.
229 C X-262.75 Y+20. DR-
230 L X-262.75 Y+230.
231 CC X-230. Y+230.
232 C X-230. Y+262.75 DR-
233 L X+230. Y+262.75
234 CC X+230. Y+230.
235 C X+262.75 Y+230. DR-
236 L X+262.75 Y+20.
237 CC X+230. Y+20.
238 C X+230. Y-12.75 DR-
239 L X-230. Y-12.75
240 L Y-13.77
241 FQ1
242 L Z+20.
243 Q22 = Q2*1.
244 FQ22
245 CC X-230. Y+20.
246 C X-263.77 Y+20. DR-
247 L X-263.77 Y+230.
248 CC X-230. Y+230.
249 C X-230. Y+263.77 DR-
250 L X+230. Y+263.77
251 CC X+230. Y+230.
252 C X+263.77 Y+230. DR-
253 L X+263.77 Y+20.
254 CC X+230. Y+20.
255 C X+230. Y-13.77 DR-
256 L X-230. Y-13.77
257 L Y-12.75
258 CC X-230. Y+20.
259 C X-262.75 Y+20. DR-
260 L X-262.75 Y+230.
261 CC X-230. Y+230.
262 C X-230. Y+262.75 DR-
263 L X+230. Y+262.75
264 CC X+230. Y+230.
265 C X+262.75 Y+230. DR-
266 L X+262.75 Y+20.
267 CC X+230. Y+20.
268 C X+230. Y-12.75 DR-
269 L X-230. Y-12.75
270 L Y-13.77
271 FQ1
272 L Z+15.
273 Q22 = Q2*1.
274 FQ22
275 CC X-230. Y+20.
276 C X-263.77 Y+20. DR-
277 L X-263.77 Y+230.
278 CC X-230. Y+230.
279 C X-230. Y+263.77 DR-
280 L X+230. Y+263.77
281 CC X+230. Y+230.
```

```
282 C X+263.77 Y+230. DR-
283 L X+263.77 Y+20.
284 CC X+230. Y+20.
285 C X+230. Y-13.77 DR-
286 L X-230. Y-13.77
287 L Y-12.75
288 CC X-230. Y+20.
289 C X-262.75 Y+20. DR-
290 L X-262.75 Y+230.
291 CC X-230. Y+230.
292 C X-230. Y+262.75 DR-
293 L X+230. Y+262.75
294 CC X+230. Y+230.
295 C X+262.75 Y+230. DR-
296 L X+262.75 Y+20.
297 CC X+230. Y+20.
298 C X+230. Y-12.75 DR-
299 L X-230. Y-12.75
300 L Y-13.77
301 FQ1
302 L Z+10.
303 Q22 = Q2*1.
304 FQ22
305 CC X-230. Y+20.
306 C X-263.77 Y+20. DR-
307 L X-263.77 Y+230.
308 CC X-230. Y+230.
309 C X-230. Y+263.77 DR-
310 L X+230. Y+263.77
311 CC X+230. Y+230.
312 C X+263.77 Y+230. DR-
313 L X+263.77 Y+20.
314 CC X+230. Y+20.
315 C X+230. Y-13.77 DR-
316 L X-230. Y-13.77
317 L Y-12.75
318 CC X-230. Y+20.
319 C X-262.75 Y+20. DR-
320 L X-262.75 Y+230.
321 CC X-230. Y+230.
322 C X-230. Y+262.75 DR-
323 L X+230. Y+262.75
324 CC X+230. Y+230.
325 C X+262.75 Y+230. DR-
326 L X+262.75 Y+20.
327 CC X+230. Y+20.
328 C X+230. Y-12.75 DR-
329 L X-230. Y-12.75
330 L Y-13.77
331 FQ1
332 L Z+5.
333 Q22 = Q2*1.
334 FQ22
335 CC X-230. Y+20.
336 C X-263.77 Y+20. DR-
337 L X-263.77 Y+230.
338 CC X-230. Y+230.
339 C X-230. Y+263.77 DR-
340 L X+230. Y+263.77
341 CC X+230. Y+230.
342 C X+263.77 Y+230. DR-
343 L X+263.77 Y+20.
344 CC X+230. Y+20.
345 C X+230. Y-13.77 DR-
346 L X-230. Y-13.77
```

```
347 L Y-12.75
348 CC X-230. Y+20.
349 C X-262.75 Y+20. DR-
350 L X-262.75 Y+230.
351 CC X-230. Y+230.
352 C X-230. Y+262.75 DR-
353 L X+230. Y+262.75
354 CC X+230. Y+230.
355 C X+262.75 Y+230. DR-
356 L X+262.75 Y+20.
357 CC X+230. Y+20.
358 C X+230. Y-12.75 DR-
359 L X-230. Y-12.75
360 L Y-13.77
361 FQ1
362 L Z+0
363 Q22 = Q2*1.
364 FQ22
365 CC X-230. Y+20.
366 C X-263.77 Y+20. DR-
367 L X-263.77 Y+230.
368 CC X-230. Y+230.
369 C X-230. Y+263.77 DR-
370 L X+230. Y+263.77
371 CC X+230. Y+230.
372 C X+263.77 Y+230. DR-
373 L X+263.77 Y+20.
374 CC X+230. Y+20.
375 C X+230. Y-13.77 DR-
376 L X-230. Y-13.77
377 L Y-12.75
378 CC X-230. Y+20.
379 C X-262.75 Y+20. DR-
380 L X-262.75 Y+230.
381 CC X-230. Y+230.
382 C X-230. Y+262.75 DR-
383 L X+230. Y+262.75
384 CC X+230. Y+230.
385 C X+262.75 Y+230. DR-
386 L X+262.75 Y+20.
387 CC X+230. Y+20.
388 C X+230. Y-12.75 DR-
389 L X-230. Y-12.75
390 L Z+60. FMAX
391 L Z+60. R0 FMAX
392 M9
393 ; T416  FREZA CTVRTKOVA - PRUM 20./ ROHOVY RADIUS 1.5
394 ; -- DEFINICE POSUVU PRO NASTROJ
395 FN 0: Q1 = 120.3211 ;(ZAPICHOVACI POSUV)
396 FN 0: Q2 = 240.6423 ;(PRACOVNI POSUV)
397 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
398 TOOL CALL 416 Z S477
399 L M6
400 L Z+60. R0 FMAX M8
401 L X+6.336 Y+134.539 FMAX M3
402 L Z+55. FMAX
403 FQ1
404 L Z+42.
405 Q22 = Q2*1.
406 FQ22
407 L X+10.014 Y+134.367
408 L X+19.251 Y+135.64
409 L X+8.936 Y+139.092
410 L X-4.86 Y+142.547
411 L X-17.198 Y+144.61
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412 L X-26.742 Y+145.341
413 L X-32.314 Y+144.911
414 L X-29.828 Y+143.341
415 L X-23.177 Y+140.207
416 L X-16.702 Y+137.957
417 L X-9.84 Y+136.36
418 L X+6.336 Y+134.539
419 L X+5.697 Y+126.561
420 L X+5.7 Y+126.56
421 L X+10.328 Y+126.344
422 L X+18.502 Y+127.369
423 L X+45.773 Y+132.373
424 L X+36.529 Y+137.228
425 L X+24.904 Y+142.184
426 L X+11.181 Y+146.777
427 L X-3.226 Y+150.385
428 L X-16.23 Y+152.559
429 L X-26.556 Y+153.351
430 L X-31.828 Y+153.191
431 L X-35.556 Y+152.401
432 L X-38.983 Y+150.368
433 L X-42.909 Y+146.964
434 L X-45.732 Y+143.921
435 L X-33.683 Y+136.314
436 L X-26.203 Y+132.789
437 L X-18.927 Y+130.261
438 L X-11.199 Y+128.463
439 L X+5.697 Y+126.561
440 L X+5.059 Y+118.582
441 L X+5.066 Y+118.581
442 L X+10.641 Y+118.32
443 L X+19.723 Y+119.46
444 L X+59.6 Y+126.777
445 L X+69.386 Y+127.823
446 L X+53.84 Y+137.172
447 L X+39.964 Y+144.46
448 L X+27.746 Y+149.669
449 L X+13.425 Y+154.462
450 L X-1.592 Y+158.222
451 L X-15.263 Y+160.508
452 L X-26.371 Y+161.36
453 L X-32.786 Y+161.166
454 L X-38.505 Y+159.954
455 L X-43.682 Y+156.882
456 L X-48.479 Y+152.723
457 L X-54.165 Y+146.594
458 L X-57.124 Y+142.575
459 L X-48.481 Y+135.948
460 L X-37.477 Y+129.258
461 L X-29.23 Y+125.371
462 L X-21.152 Y+122.565
463 L X-12.557 Y+120.565
464 L X+5.059 Y+118.582
465 L X+4.421 Y+110.603
466 L X+4.431 Y+110.602
467 L X+10.954 Y+110.297
468 L X+20.944 Y+111.55
469 L X+60.748 Y+118.854
470 L X+81.949 Y+121.121
471 L X+94.867 Y+121.834
472 L X+57.765 Y+144.147
473 L X+43.398 Y+151.693
474 L X+30.589 Y+157.154
475 L X+15.67 Y+162.147
476 L X+0.042 Y+166.06
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477 L X-14.295 Y+168.458
478 L X-26.185 Y+169.369
479 L X-33.532 Y+169.147
480 L X-38.221 Y+168.409
481 L X-41.431 Y+167.424
482 L X-44.661 Y+165.868
483 L X-48.555 Y+163.245
484 L X-54.048 Y+158.483
485 L X-60.338 Y+151.703
486 L X-67.806 Y+141.561
487 L X-61.669 Y+135.882
488 L X-52.981 Y+129.321
489 L X-41.271 Y+122.202
490 L X-32.256 Y+117.954
491 L X-23.378 Y+114.869
492 L X-13.916 Y+112.668
493 L X+4.421 Y+110.603
494 L X+3.782 Y+102.624
495 L X+3.796 Y+102.623
496 L X+11.268 Y+102.274
497 L X+22.164 Y+103.641
498 L X+61.897 Y+110.931
499 L X+82.596 Y+113.145
500 L X+115.409 Y+114.956
501 L X+121.171 Y+115.808
502 L X+92.438 Y+132.496
503 L X+61.701 Y+151.116
504 L X+46.833 Y+158.926
505 L X+33.432 Y+164.639
506 L X+17.914 Y+169.832
507 L X+1.675 Y+173.898
508 L X-13.328 Y+176.407
509 L X-26. Y+177.378
510 L X-34.277 Y+177.128
511 L X-40.025 Y+176.223
512 L X-44.356 Y+174.895
513 L X-48.653 Y+172.825
514 L X-53.428 Y+169.608
515 L X-59.617 Y+164.243
516 L X-66.497 Y+156.826
517 L X-74.212 Y+146.458
518 L X-77.562 Y+140.706
519 L X-73.605 Y+136.028
520 L X-66.809 Y+129.738
521 L X-57.48 Y+122.695
522 L X-45.065 Y+115.146
523 L X-35.282 Y+110.536
524 L X-25.604 Y+107.173
525 L X-15.275 Y+104.77
526 L X+3.782 Y+102.624
527 L X+3.144 Y+94.646
528 L X+3.161 Y+94.644
529 L X+11.581 Y+94.25
530 L X+23.385 Y+95.731
531 L X+63.046 Y+103.008
532 L X+83.242 Y+105.168
533 L X+116.216 Y+106.989
534 L X+125.631 Y+108.38
535 L X+131.65 Y+110.051
536 L X+135.993 Y+111.999
537 L X+139.494 Y+114.417
538 L X+96.52 Y+139.377
539 L X+65.637 Y+158.085
540 L X+50.267 Y+166.158
541 L X+36.275 Y+172.123
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542 L X+20.159 Y+177.517
543 L X+3.309 Y+181.736
544 L X-12.361 Y+184.356
545 L X-25.815 Y+185.388
546 L X-35.023 Y+185.109
547 L X-41.829 Y+184.038
548 L X-47.282 Y+182.365
549 L X-52.644 Y+179.782
550 L X-58.301 Y+175.971
551 L X-65.186 Y+170.002
552 L X-72.656 Y+161.949
553 L X-80.89 Y+150.885
554 L X-84.813 Y+144.206
555 L X-86.366 Y+139.761
556 L X-83.899 Y+135.736
557 L X-79.376 Y+130.468
558 L X-71.949 Y+123.595
559 L X-61.98 Y+116.068
560 L X-48.858 Y+108.09
561 L X-38.309 Y+103.118
562 L X-27.829 Y+99.478
563 L X-16.633 Y+96.872
564 L X+3.144 Y+94.646
565 L X+2.506 Y+86.671
566 L X+2.677 Y+86.658
567 L X+11.894 Y+86.227
568 L X+24.606 Y+87.821
569 L X+64.195 Y+95.086
570 L X+83.888 Y+97.192
571 L X+117.023 Y+99.021
572 L X+127.292 Y+100.539
573 L X+134.372 Y+102.504
574 L X+139.937 Y+104.999
575 L X+146.816 Y+109.753
576 L X+151.918 Y+115.258
577 L X+145.541 Y+120.157
578 L X+100.602 Y+146.258
579 L X+69.573 Y+165.054
580 L X+53.701 Y+173.391
581 L X+39.118 Y+179.608
582 L X+22.403 Y+185.202
583 L X+4.943 Y+189.574
584 L X-11.393 Y+192.306
585 L X-25.629 Y+193.397
586 L X-35.769 Y+193.09
587 L X-43.633 Y+191.852
588 L X-50.208 Y+189.836
589 L X-56.635 Y+186.739
590 L X-63.174 Y+182.335
591 L X-70.755 Y+175.762
592 L X-78.816 Y+167.073
593 L X-87.568 Y+155.312
594 L X-92.043 Y+147.693
595 L X-94.224 Y+142.034
596 L X-94.479 Y+138.993
597 L X-93.741 Y+136.485
598 L X-90.385 Y+131.01
599 L X-85.147 Y+124.908
600 L X-77.089 Y+117.452
601 L X-66.48 Y+109.441
602 L X-52.652 Y+101.034
603 L X-41.335 Y+95.701
604 L X-30.054 Y+91.782
605 L X-18.065 Y+88.992
606 L X-4.241 Y+87.172
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607 L X+2.506 Y+86.671
608 L X+1.868 Y+78.696
609 L X+2.193 Y+78.672
610 L X+12.208 Y+78.203
611 L X+25.827 Y+79.912
612 L X+65.344 Y+87.163
613 L X+84.535 Y+89.215
614 L X+117.83 Y+91.053
615 L X+128.953 Y+92.697
616 L X+137.094 Y+94.957
617 L X+143.881 Y+98.
618 L X+152.032 Y+103.633
619 L X+158.051 Y+109.918
620 L X+160.907 Y+114.723
621 L X+161.424 Y+116.733
622 L X+158.441 Y+120.335
623 L X+150.045 Y+126.785
624 L X+136.47 Y+134.898
625 L X+104.666 Y+153.15
626 L X+73.509 Y+172.023
627 L X+57.136 Y+180.623
628 L X+41.96 Y+187.093
629 L X+24.648 Y+192.887
630 L X+6.577 Y+197.412
631 L X-10.426 Y+200.255
632 L X-25.444 Y+201.406
633 L X-36.515 Y+201.071
634 L X-45.437 Y+199.667
635 L X-53.133 Y+197.306
636 L X-60.627 Y+193.697
637 L X-68.047 Y+188.698
638 L X-76.325 Y+181.521
639 L X-84.975 Y+172.196
640 L X-94.246 Y+159.739
641 L X-99.272 Y+151.181
642 L X-102.101 Y+143.843
643 L X-102.576 Y+138.17
644 L X-101.117 Y+133.209
645 L X-96.872 Y+126.284
646 L X-90.917 Y+119.349
647 L X-82.229 Y+111.308
648 L X-70.98 Y+102.814
649 L X-56.446 Y+93.978
650 L X-44.361 Y+88.283
651 L X-32.28 Y+84.086
652 L X-19.497 Y+81.111
653 L X-5.061 Y+79.211
654 L X+1.868 Y+78.696
655 L X+1.23 Y+70.729
656 L X+1.243 Y+70.728
657 L X+4.142 Y+70.388
658 L X+6.814 Y+70.203
659 L X+9.6 Y+70.142
660 L X+12.56 Y+70.209
661 L X+15.742 Y+70.417
662 L X+18.707 Y+70.724
663 L X+22.426 Y+71.236
664 L X+27.219 Y+72.034
665 L X+33.746 Y+73.255
666 L X+44.52 Y+75.378
667 L X+52.052 Y+76.821
668 L X+59.558 Y+78.153
669 L X+66.496 Y+79.246
670 L X+72.939 Y+80.107
671 L X+79.002 Y+80.755
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672 L X+85.072 Y+81.233
673 L X+92.172 Y+81.63
674 L X+107.823 Y+82.317
675 L X+113.591 Y+82.667
676 L X+118.621 Y+83.092
677 L X+123.045 Y+83.598
678 L X+127.005 Y+84.189
679 L X+130.599 Y+84.866
680 L X+133.895 Y+85.631
681 L X+136.946 Y+86.483
682 L X+139.79 Y+87.422
683 L X+142.444 Y+88.446
684 L X+145.304 Y+89.73
685 L X+147.737 Y+90.988
686 L X+150.194 Y+92.422
687 L X+152.624 Y+94.011
688 L X+154.983 Y+95.73
689 L X+157.224 Y+97.543
690 L X+159.312 Y+99.418
691 L X+161.221 Y+101.322
692 L X+162.932 Y+103.221
693 L X+164.432 Y+105.087
694 L X+165.716 Y+106.89
695 L X+166.786 Y+108.606
696 L X+167.65 Y+110.215
697 L X+168.32 Y+111.701
698 L X+168.814 Y+113.052
699 L X+169.152 Y+114.262
700 L X+169.358 Y+115.332
701 L X+169.455 Y+116.267
702 L X+169.464 Y+117.078
703 L X+169.385 Y+117.965
704 L X+169.204 Y+118.745
705 L X+168.962 Y+119.466
706 L X+168.604 Y+120.277
707 L X+168.101 Y+121.196
708 L X+167.419 Y+122.233
709 L X+166.526 Y+123.398
710 L X+165.387 Y+124.695
711 L X+163.962 Y+126.129
712 L X+162.213 Y+127.707
713 L X+160.089 Y+129.44
714 L X+157.534 Y+131.345
715 L X+154.465 Y+133.454
716 L X+150.765 Y+135.818
717 L X+146.227 Y+138.541
718 L X+140.395 Y+141.869
719 L X+124.667 Y+150.608
720 L X+117.238 Y+154.918
721 L X+108.826 Y+159.983
722 L X+91.174 Y+170.852
723 L X+83.975 Y+175.191
724 L X+77.461 Y+178.979
725 L X+71.504 Y+182.283
726 L X+65.92 Y+185.213
727 L X+60.576 Y+187.846
728 L X+55.62 Y+190.127
729 L X+50.343 Y+192.382
730 L X+44.801 Y+194.572
731 L X+39.02 Y+196.68
732 L X+33.034 Y+198.686
733 L X+26.891 Y+200.567
734 L X+20.664 Y+202.299
735 L X+14.408 Y+203.865
736 L X+8.211 Y+205.244
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737 L X+2.133 Y+206.428
738 L X-3.77 Y+207.412
739 L X-9.448 Y+208.196
740 L X-14.847 Y+208.781
741 L X-20.626 Y+209.217
742 L X-25.257 Y+209.405
743 L X-29.544 Y+209.431
744 L X-33.528 Y+209.305
745 L X-37.252 Y+209.039
746 L X-40.756 Y+208.641
747 L X-44.073 Y+208.115
748 L X-47.233 Y+207.465
749 L X-50.264 Y+206.691
750 L X-53.192 Y+205.792
751 L X-56.039 Y+204.763
752 L X-58.823 Y+203.598
753 L X-61.534 Y+202.304
754 L X-64.615 Y+200.634
755 L X-67.283 Y+199.011
756 L X-70.057 Y+197.148
757 L X-72.915 Y+195.048
758 L X-75.847 Y+192.705
759 L X-78.844 Y+190.113
760 L X-81.888 Y+187.272
761 L X-84.964 Y+184.186
762 L X-88.05 Y+180.864
763 L X-91.109 Y+177.333
764 L X-94.11 Y+173.625
765 L X-97.017 Y+169.776
766 L X-99.824 Y+165.79
767 L X-100.95 Y+164.106
768 L X-103.162 Y+160.619
769 L X-104.961 Y+157.538
770 L X-106.432 Y+154.755
771 L X-107.624 Y+152.218
772 L X-108.576 Y+149.892
773 L X-109.317 Y+147.745
774 L X-109.874 Y+145.753
775 L X-110.269 Y+143.893
776 L X-110.521 Y+142.141
777 L X-110.643 Y+140.476
778 L X-110.646 Y+138.873
779 L X-110.535 Y+137.309
780 L X-110.31 Y+135.765
781 L X-109.958 Y+134.169
782 L X-109.698 Y+133.256
783 L X-109.124 Y+131.608
784 L X-108.392 Y+129.875
785 L X-107.462 Y+127.996
786 L X-106.313 Y+125.972
787 L X-104.926 Y+123.804
788 L X-103.284 Y+121.496
789 L X-101.371 Y+119.053
790 L X-99.172 Y+116.482
791 L X-96.676 Y+113.794
792 L X-93.877 Y+111.001
793 L X-90.771 Y+108.119
794 L X-87.362 Y+105.171
795 L X-83.662 Y+102.18
796 L X-79.693 Y+99.179
797 L X-75.498 Y+96.211
798 L X-71.143 Y+93.33
799 L X-66.655 Y+90.558
800 L X-64.647 Y+89.381
801 L X-60.214 Y+86.92
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802 L X-55.899 Y+84.706
803 L X-51.633 Y+82.698
804 L X-47.386 Y+80.875
805 L X-43.129 Y+79.225
806 L X-38.84 Y+77.735
807 L X-34.499 Y+76.398
808 L X-30.088 Y+75.209
809 L X-25.573 Y+74.157
810 L X-20.92 Y+73.238
811 L X-16.094 Y+72.446
812 L X-11.052 Y+71.78
813 L X-5.759 Y+71.241
814 L X+1.23 Y+70.729
815 L X+1.167 Y+69.932
816 L X+4.067 Y+69.591
817 L X+6.777 Y+69.404
818 L X+9.601 Y+69.342
819 L X+12.595 Y+69.41
820 L X+15.809 Y+69.62
821 L X+18.803 Y+69.93
822 L X+22.546 Y+70.445
823 L X+27.358 Y+71.246
824 L X+33.897 Y+72.469
825 L X+44.673 Y+74.593
826 L X+52.197 Y+76.034
827 L X+59.69 Y+77.364
828 L X+66.611 Y+78.454
829 L X+73.034 Y+79.312
830 L X+79.076 Y+79.958
831 L X+85.126 Y+80.434
832 L X+92.212 Y+80.831
833 L X+107.864 Y+81.518
834 L X+113.648 Y+81.869
835 L X+118.7 Y+82.296
836 L X+123.15 Y+82.804
837 L X+127.138 Y+83.4
838 L X+130.763 Y+84.083
839 L X+134.093 Y+84.856
840 L X+137.179 Y+85.717
841 L X+140.06 Y+86.669
842 L X+142.752 Y+87.707
843 L X+145.652 Y+89.01
844 L X+148.122 Y+90.287
845 L X+150.615 Y+91.742
846 L X+153.079 Y+93.353
847 L X+155.47 Y+95.095
848 L X+157.743 Y+96.934
849 L X+159.862 Y+98.837
850 L X+161.801 Y+100.77
851 L X+163.541 Y+102.703
852 L X+165.07 Y+104.604
853 L X+166.382 Y+106.446
854 L X+167.479 Y+108.205
855 L X+168.367 Y+109.861
856 L X+169.061 Y+111.398
857 L X+169.576 Y+112.806
858 L X+169.932 Y+114.078
859 L X+170.151 Y+115.215
860 L X+170.255 Y+116.221
861 L X+170.265 Y+117.109
862 L X+170.177 Y+118.092
863 L X+169.975 Y+118.963
864 L X+169.709 Y+119.756
865 L X+169.322 Y+120.631
866 L X+168.787 Y+121.608
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867 L X+168.072 Y+122.697
868 L X+167.145 Y+123.906
869 L X+165.971 Y+125.241
870 L X+164.514 Y+126.708
871 L X+162.734 Y+128.314
872 L X+160.582 Y+130.07
873 L X+157.999 Y+131.996
874 L X+154.907 Y+134.121
875 L X+151.186 Y+136.498
876 L X+146.631 Y+139.232
877 L X+140.788 Y+142.566
878 L X+125.062 Y+151.304
879 L X+117.646 Y+155.607
880 L X+109.242 Y+160.666
881 L X+91.59 Y+171.535
882 L X+84.383 Y+175.88
883 L X+77.856 Y+179.675
884 L X+71.884 Y+182.987
885 L X+66.283 Y+185.927
886 L X+60.92 Y+188.569
887 L X+55.944 Y+190.858
888 L X+50.647 Y+193.122
889 L X+45.086 Y+195.32
890 L X+39.284 Y+197.435
891 L X+33.278 Y+199.447
892 L X+27.116 Y+201.335
893 L X+20.868 Y+203.072
894 L X+14.592 Y+204.643
895 L X+8.375 Y+206.027
896 L X+2.276 Y+207.215
897 L X-3.649 Y+208.203
898 L X-9.35 Y+208.99
899 L X-14.774 Y+209.577
900 L X-20.58 Y+210.015
901 L X-25.239 Y+210.205
902 L X-29.555 Y+210.231
903 L X-33.569 Y+210.104
904 L X-37.326 Y+209.836
905 L X-40.864 Y+209.434
906 L X-44.216 Y+208.902
907 L X-47.413 Y+208.245
908 L X-50.481 Y+207.462
909 L X-53.445 Y+206.551
910 L X-56.329 Y+205.508
911 L X-59.15 Y+204.328
912 L X-61.897 Y+203.018
913 L X-65.014 Y+201.328
914 L X-67.714 Y+199.685
915 L X-70.517 Y+197.803
916 L X-73.402 Y+195.684
917 L X-76.359 Y+193.32
918 L X-79.378 Y+190.708
919 L X-82.445 Y+187.847
920 L X-85.541 Y+184.74
921 L X-88.645 Y+181.398
922 L X-91.723 Y+177.847
923 L X-94.74 Y+174.118
924 L X-97.663 Y+170.247
925 L X-100.484 Y+166.242
926 L X-101.62 Y+164.542
927 L X-103.845 Y+161.035
928 L X-105.66 Y+157.927
929 L X-107.148 Y+155.112
930 L X-108.357 Y+152.54
931 L X-109.325 Y+150.174
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932 L X-110.081 Y+147.984
933 L X-110.651 Y+145.944
934 L X-111.057 Y+144.033
935 L X-111.316 Y+142.228
936 L X-111.443 Y+140.506
937 L X-111.446 Y+138.846
938 L X-111.331 Y+137.223
939 L X-111.098 Y+135.621
940 L X-110.734 Y+133.973
941 L X-110.461 Y+133.014
942 L X-109.871 Y+131.321
943 L X-109.12 Y+129.541
944 L X-108.169 Y+127.621
945 L X-106.998 Y+125.559
946 L X-105.589 Y+123.357
947 L X-103.925 Y+121.017
948 L X-101.99 Y+118.546
949 L X-99.769 Y+115.95
950 L X-97.252 Y+113.238
951 L X-94.432 Y+110.424
952 L X-91.305 Y+107.523
953 L X-87.875 Y+104.557
954 L X-84.155 Y+101.55
955 L X-80.165 Y+98.533
956 L X-75.95 Y+95.551
957 L X-71.574 Y+92.656
958 L X-67.068 Y+89.873
959 L X-65.044 Y+88.686
960 L X-60.591 Y+86.214
961 L X-56.252 Y+83.988
962 L X-51.961 Y+81.968
963 L X-47.688 Y+80.135
964 L X-43.404 Y+78.473
965 L X-39.089 Y+76.975
966 L X-34.721 Y+75.63
967 L X-30.282 Y+74.433
968 L X-25.741 Y+73.375
969 L X-21.063 Y+72.451
970 L X-16.211 Y+71.655
971 L X-11.145 Y+70.986
972 L X-5.828 Y+70.444
973 L X+1.167 Y+69.932
974 L Z+60. FMAX
975 L X+6.336 Y+134.539 FMAX
976 L Z+47. FMAX
977 FQ1
978 L Z+34.
979 Q22 = Q2*1.
980 FQ22
981 L X+10.014 Y+134.367
982 L X+19.251 Y+135.64
983 L X+8.936 Y+139.092
984 L X-4.86 Y+142.547
985 L X-17.198 Y+144.61
986 L X-26.742 Y+145.341
987 L X-32.314 Y+144.911
988 L X-29.828 Y+143.341
989 L X-23.177 Y+140.207
990 L X-16.702 Y+137.957
991 L X-9.84 Y+136.36
992 L X+6.336 Y+134.539
993 L X+5.697 Y+126.561
994 L X+5.7 Y+126.56
995 L X+10.328 Y+126.344
996 L X+18.502 Y+127.369
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998 L X+36.529 Y+137.228
999 L X+24.904 Y+142.184
1000 L X+11.181 Y+146.777
1001 L X-3.226 Y+150.385
1002 L X-16.23 Y+152.559
1003 L X-26.556 Y+153.351
1004 L X-31.828 Y+153.191
1005 L X-35.556 Y+152.401
1006 L X-38.983 Y+150.368
1007 L X-42.909 Y+146.964
1008 L X-45.732 Y+143.921
1009 L X-33.683 Y+136.314
1010 L X-26.203 Y+132.789
1011 L X-18.927 Y+130.261
1012 L X-11.199 Y+128.463
1013 L X+5.697 Y+126.561
1014 L X+5.059 Y+118.582
1015 L X+5.066 Y+118.581
1016 L X+10.641 Y+118.32
1017 L X+19.723 Y+119.46
1018 L X+59.6 Y+126.777
1019 L X+69.386 Y+127.823
1020 L X+53.84 Y+137.172
1021 L X+39.964 Y+144.46
1022 L X+27.746 Y+149.669
1023 L X+13.425 Y+154.462
1024 L X-1.592 Y+158.222
1025 L X-15.263 Y+160.508
1026 L X-26.371 Y+161.36
1027 L X-32.786 Y+161.166
1028 L X-38.505 Y+159.954
1029 L X-43.682 Y+156.882
1030 L X-48.479 Y+152.723
1031 L X-54.165 Y+146.594
1032 L X-57.124 Y+142.575
1033 L X-48.481 Y+135.948
1034 L X-37.477 Y+129.258
1035 L X-29.23 Y+125.371
1036 L X-21.152 Y+122.565
1037 L X-12.557 Y+120.565
1038 L X+5.059 Y+118.582
1039 L X+4.421 Y+110.603
1040 L X+4.431 Y+110.602
1041 L X+10.954 Y+110.297
1042 L X+20.944 Y+111.55
1043 L X+60.748 Y+118.854
1044 L X+81.949 Y+121.121
1045 L X+94.867 Y+121.834
1046 L X+57.765 Y+144.147
1047 L X+43.398 Y+151.693
1048 L X+30.589 Y+157.154
1049 L X+15.67 Y+162.147
1050 L X+0.042 Y+166.06
1051 L X-14.295 Y+168.458
1052 L X-26.185 Y+169.369
1053 L X-33.532 Y+169.147
1054 L X-38.221 Y+168.409
1055 L X-41.431 Y+167.424
1056 L X-44.661 Y+165.868
1057 L X-48.555 Y+163.245
1058 L X-54.048 Y+158.483
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1060 L X-67.806 Y+141.561
1061 L X-61.669 Y+135.882
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1064 L X-32.256 Y+117.954
1065 L X-23.378 Y+114.869
1066 L X-13.916 Y+112.668
1067 L X+4.421 Y+110.603
1068 L X+3.782 Y+102.624
1069 L X+3.796 Y+102.623
1070 L X+11.268 Y+102.274
1071 L X+22.164 Y+103.641
1072 L X+61.897 Y+110.931
1073 L X+82.596 Y+113.145
1074 L X+115.409 Y+114.956
1075 L X+121.171 Y+115.808
1076 L X+92.438 Y+132.496
1077 L X+61.701 Y+151.116
1078 L X+46.833 Y+158.926
1079 L X+33.432 Y+164.639
1080 L X+17.914 Y+169.832
1081 L X+1.675 Y+173.898
1082 L X-13.328 Y+176.407
1083 L X-26. Y+177.378
1084 L X-34.277 Y+177.128
1085 L X-40.025 Y+176.223
1086 L X-44.356 Y+174.895
1087 L X-48.653 Y+172.825
1088 L X-53.428 Y+169.608
1089 L X-59.617 Y+164.243
1090 L X-66.497 Y+156.826
1091 L X-74.212 Y+146.458
1092 L X-77.562 Y+140.706
1093 L X-73.605 Y+136.028
1094 L X-66.809 Y+129.738
1095 L X-57.48 Y+122.695
1096 L X-45.065 Y+115.146
1097 L X-35.282 Y+110.536
1098 L X-25.604 Y+107.173
1099 L X-15.275 Y+104.77
1100 L X+3.782 Y+102.624
1101 L X+3.144 Y+94.646
1102 L X+3.161 Y+94.644
1103 L X+11.581 Y+94.25
1104 L X+23.385 Y+95.731
1105 L X+63.046 Y+103.008
1106 L X+83.242 Y+105.168
1107 L X+116.216 Y+106.989
1108 L X+125.631 Y+108.38
1109 L X+131.65 Y+110.051
1110 L X+135.993 Y+111.999
1111 L X+139.494 Y+114.417
1112 L X+96.52 Y+139.377
1113 L X+65.637 Y+158.085
1114 L X+50.267 Y+166.158
1115 L X+36.275 Y+172.123
1116 L X+20.159 Y+177.517
1117 L X+3.309 Y+181.736
1118 L X-12.361 Y+184.356
1119 L X-25.815 Y+185.388
1120 L X-35.023 Y+185.109
1121 L X-41.829 Y+184.038
1122 L X-47.282 Y+182.365
1123 L X-52.644 Y+179.782
1124 L X-58.301 Y+175.971
1125 L X-65.186 Y+170.002
1126 L X-72.656 Y+161.949
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1128 L X-84.813 Y+144.206
1129 L X-86.366 Y+139.761
1130 L X-83.899 Y+135.736
1131 L X-79.376 Y+130.468
1132 L X-71.949 Y+123.595
1133 L X-61.98 Y+116.068
1134 L X-48.858 Y+108.09
1135 L X-38.309 Y+103.118
1136 L X-27.829 Y+99.478
1137 L X-16.633 Y+96.872
1138 L X+3.144 Y+94.646
1139 L X+2.506 Y+86.671
1140 L X+2.677 Y+86.658
1141 L X+11.894 Y+86.227
1142 L X+24.606 Y+87.821
1143 L X+64.195 Y+95.086
1144 L X+83.888 Y+97.192
1145 L X+117.023 Y+99.021
1146 L X+127.292 Y+100.539
1147 L X+134.372 Y+102.504
1148 L X+139.937 Y+104.999
1149 L X+146.816 Y+109.753
1150 L X+151.918 Y+115.258
1151 L X+145.541 Y+120.157
1152 L X+100.602 Y+146.258
1153 L X+69.573 Y+165.054
1154 L X+53.701 Y+173.391
1155 L X+39.118 Y+179.608
1156 L X+22.403 Y+185.202
1157 L X+4.943 Y+189.574
1158 L X-11.393 Y+192.306
1159 L X-25.629 Y+193.397
1160 L X-35.769 Y+193.09
1161 L X-43.633 Y+191.852
1162 L X-50.208 Y+189.836
1163 L X-56.635 Y+186.739
1164 L X-63.174 Y+182.335
1165 L X-70.755 Y+175.762
1166 L X-78.816 Y+167.073
1167 L X-87.568 Y+155.312
1168 L X-92.043 Y+147.693
1169 L X-94.224 Y+142.034
1170 L X-94.479 Y+138.993
1171 L X-93.741 Y+136.485
1172 L X-90.385 Y+131.01
1173 L X-85.147 Y+124.908
1174 L X-77.089 Y+117.452
1175 L X-66.48 Y+109.441
1176 L X-52.652 Y+101.034
1177 L X-41.335 Y+95.701
1178 L X-30.054 Y+91.782
1179 L X-18.065 Y+88.992
1180 L X-4.241 Y+87.172
1181 L X+2.506 Y+86.671
1182 L X+1.868 Y+78.696
1183 L X+2.193 Y+78.672
1184 L X+12.208 Y+78.203
1185 L X+25.827 Y+79.912
1186 L X+65.344 Y+87.163
1187 L X+84.535 Y+89.215
1188 L X+117.83 Y+91.053
1189 L X+128.953 Y+92.697
1190 L X+137.094 Y+94.957
1191 L X+143.881 Y+98.
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1194 L X+160.907 Y+114.723
1195 L X+161.424 Y+116.733
1196 L X+158.441 Y+120.335
1197 L X+150.045 Y+126.785
1198 L X+136.47 Y+134.898
1199 L X+104.666 Y+153.15
1200 L X+73.509 Y+172.023
1201 L X+57.136 Y+180.623
1202 L X+41.96 Y+187.093
1203 L X+24.648 Y+192.887
1204 L X+6.577 Y+197.412
1205 L X-10.426 Y+200.255
1206 L X-25.444 Y+201.406
1207 L X-36.515 Y+201.071
1208 L X-45.437 Y+199.667
1209 L X-53.133 Y+197.306
1210 L X-60.627 Y+193.697
1211 L X-68.047 Y+188.698
1212 L X-76.325 Y+181.521
1213 L X-84.975 Y+172.196
1214 L X-94.246 Y+159.739
1215 L X-99.272 Y+151.181
1216 L X-102.101 Y+143.843
1217 L X-102.576 Y+138.17
1218 L X-101.117 Y+133.209
1219 L X-96.872 Y+126.284
1220 L X-90.917 Y+119.349
1221 L X-82.229 Y+111.308
1222 L X-70.98 Y+102.814
1223 L X-56.446 Y+93.978
1224 L X-44.361 Y+88.283
1225 L X-32.28 Y+84.086
1226 L X-19.497 Y+81.111
1227 L X-5.061 Y+79.211
1228 L X+1.868 Y+78.696
1229 L X+1.23 Y+70.729
1230 L X+1.243 Y+70.728
1231 L X+4.142 Y+70.388
1232 L X+6.814 Y+70.203
1233 L X+9.6 Y+70.142
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1235 L X+15.742 Y+70.417
1236 L X+18.707 Y+70.724
1237 L X+22.426 Y+71.236
1238 L X+27.219 Y+72.034
1239 L X+33.746 Y+73.255
1240 L X+44.52 Y+75.378
1241 L X+52.052 Y+76.821
1242 L X+59.558 Y+78.153
1243 L X+66.496 Y+79.246
1244 L X+72.939 Y+80.107
1245 L X+79.002 Y+80.755
1246 L X+85.072 Y+81.233
1247 L X+92.172 Y+81.63
1248 L X+107.823 Y+82.317
1249 L X+113.591 Y+82.667
1250 L X+118.621 Y+83.092
1251 L X+123.045 Y+83.598
1252 L X+127.005 Y+84.189
1253 L X+130.599 Y+84.866
1254 L X+133.895 Y+85.631
1255 L X+136.946 Y+86.483
1256 L X+139.79 Y+87.422
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1259 L X+147.737 Y+90.988
1260 L X+150.194 Y+92.422
1261 L X+152.624 Y+94.011
1262 L X+154.983 Y+95.73
1263 L X+157.224 Y+97.543
1264 L X+159.312 Y+99.418
1265 L X+161.221 Y+101.322
1266 L X+162.932 Y+103.221
1267 L X+164.432 Y+105.087
1268 L X+165.716 Y+106.89
1269 L X+166.786 Y+108.606
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1271 L X+168.32 Y+111.701
1272 L X+168.814 Y+113.052
1273 L X+169.152 Y+114.262
1274 L X+169.358 Y+115.332
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1277 L X+169.385 Y+117.965
1278 L X+169.204 Y+118.745
1279 L X+168.962 Y+119.466
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1281 L X+168.101 Y+121.196
1282 L X+167.419 Y+122.233
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1284 L X+165.387 Y+124.695
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1286 L X+162.213 Y+127.707
1287 L X+160.089 Y+129.44
1288 L X+157.534 Y+131.345
1289 L X+154.465 Y+133.454
1290 L X+150.765 Y+135.818
1291 L X+146.227 Y+138.541
1292 L X+140.395 Y+141.869
1293 L X+124.667 Y+150.608
1294 L X+117.238 Y+154.918
1295 L X+108.826 Y+159.983
1296 L X+91.174 Y+170.852
1297 L X+83.975 Y+175.191
1298 L X+77.461 Y+178.979
1299 L X+71.504 Y+182.283
1300 L X+65.92 Y+185.213
1301 L X+60.576 Y+187.846
1302 L X+55.62 Y+190.127
1303 L X+50.343 Y+192.382
1304 L X+44.801 Y+194.572
1305 L X+39.02 Y+196.68
1306 L X+33.034 Y+198.686
1307 L X+26.891 Y+200.567
1308 L X+20.664 Y+202.299
1309 L X+14.408 Y+203.865
1310 L X+8.211 Y+205.244
1311 L X+2.133 Y+206.428
1312 L X-3.77 Y+207.412
1313 L X-9.448 Y+208.196
1314 L X-14.847 Y+208.781
1315 L X-20.626 Y+209.217
1316 L X-25.257 Y+209.405
1317 L X-29.544 Y+209.431
1318 L X-33.528 Y+209.305
1319 L X-37.252 Y+209.039
1320 L X-40.756 Y+208.641
1321 L X-44.073 Y+208.115
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1325 L X-56.039 Y+204.763
1326 L X-58.823 Y+203.598
1327 L X-61.534 Y+202.304
1328 L X-64.615 Y+200.634
1329 L X-67.283 Y+199.011
1330 L X-70.057 Y+197.148
1331 L X-72.915 Y+195.048
1332 L X-75.847 Y+192.705
1333 L X-78.844 Y+190.113
1334 L X-81.888 Y+187.272
1335 L X-84.964 Y+184.186
1336 L X-88.05 Y+180.864
1337 L X-91.109 Y+177.333
1338 L X-94.11 Y+173.625
1339 L X-97.017 Y+169.776
1340 L X-99.824 Y+165.79
1341 L X-100.95 Y+164.106
1342 L X-103.162 Y+160.619
1343 L X-104.961 Y+157.538
1344 L X-106.432 Y+154.755
1345 L X-107.624 Y+152.218
1346 L X-108.576 Y+149.892
1347 L X-109.317 Y+147.745
1348 L X-109.874 Y+145.753
1349 L X-110.269 Y+143.893
1350 L X-110.521 Y+142.141
1351 L X-110.643 Y+140.476
1352 L X-110.646 Y+138.873
1353 L X-110.535 Y+137.309
1354 L X-110.31 Y+135.765
1355 L X-109.958 Y+134.169
1356 L X-109.698 Y+133.256
1357 L X-109.124 Y+131.608
1358 L X-108.392 Y+129.875
1359 L X-107.462 Y+127.996
1360 L X-106.313 Y+125.972
1361 L X-104.926 Y+123.804
1362 L X-103.284 Y+121.496
1363 L X-101.371 Y+119.053
1364 L X-99.172 Y+116.482
1365 L X-96.676 Y+113.794
1366 L X-93.877 Y+111.001
1367 L X-90.771 Y+108.119
1368 L X-87.362 Y+105.171
1369 L X-83.662 Y+102.18
1370 L X-79.693 Y+99.179
1371 L X-75.498 Y+96.211
1372 L X-71.143 Y+93.33
1373 L X-66.655 Y+90.558
1374 L X-64.647 Y+89.381
1375 L X-60.214 Y+86.92
1376 L X-55.899 Y+84.706
1377 L X-51.633 Y+82.698
1378 L X-47.386 Y+80.875
1379 L X-43.129 Y+79.225
1380 L X-38.84 Y+77.735
1381 L X-34.499 Y+76.398
1382 L X-30.088 Y+75.209
1383 L X-25.573 Y+74.157
1384 L X-20.92 Y+73.238
1385 L X-16.094 Y+72.446
1386 L X-11.052 Y+71.78
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1392 L X+9.601 Y+69.342
1393 L X+12.595 Y+69.41
1394 L X+15.809 Y+69.62
1395 L X+18.803 Y+69.93
1396 L X+22.546 Y+70.445
1397 L X+27.358 Y+71.246
1398 L X+33.897 Y+72.469
1399 L X+44.673 Y+74.593
1400 L X+52.197 Y+76.034
1401 L X+59.69 Y+77.364
1402 L X+66.611 Y+78.454
1403 L X+73.034 Y+79.312
1404 L X+79.076 Y+79.958
1405 L X+85.126 Y+80.434
1406 L X+92.212 Y+80.831
1407 L X+107.864 Y+81.518
1408 L X+113.648 Y+81.869
1409 L X+118.7 Y+82.296
1410 L X+123.15 Y+82.804
1411 L X+127.138 Y+83.4
1412 L X+130.763 Y+84.083
1413 L X+134.093 Y+84.856
1414 L X+137.179 Y+85.717
1415 L X+140.06 Y+86.669
1416 L X+142.752 Y+87.707
1417 L X+145.652 Y+89.01
1418 L X+148.122 Y+90.287
1419 L X+150.615 Y+91.742
1420 L X+153.079 Y+93.353
1421 L X+155.47 Y+95.095
1422 L X+157.743 Y+96.934
1423 L X+159.862 Y+98.837
1424 L X+161.801 Y+100.77
1425 L X+163.541 Y+102.703
1426 L X+165.07 Y+104.604
1427 L X+166.382 Y+106.446
1428 L X+167.479 Y+108.205
1429 L X+168.367 Y+109.861
1430 L X+169.061 Y+111.398
1431 L X+169.576 Y+112.806
1432 L X+169.932 Y+114.078
1433 L X+170.151 Y+115.215
1434 L X+170.255 Y+116.221
1435 L X+170.265 Y+117.109
1436 L X+170.177 Y+118.092
1437 L X+169.975 Y+118.963
1438 L X+169.709 Y+119.756
1439 L X+169.322 Y+120.631
1440 L X+168.787 Y+121.608
1441 L X+168.072 Y+122.697
1442 L X+167.145 Y+123.906
1443 L X+165.971 Y+125.241
1444 L X+164.514 Y+126.708
1445 L X+162.734 Y+128.314
1446 L X+160.582 Y+130.07
1447 L X+157.999 Y+131.996
1448 L X+154.907 Y+134.121
1449 L X+151.186 Y+136.498
1450 L X+146.631 Y+139.232
1451 L X+140.788 Y+142.566
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1457 L X+77.856 Y+179.675
1458 L X+71.884 Y+182.987
1459 L X+66.283 Y+185.927
1460 L X+60.92 Y+188.569
1461 L X+55.944 Y+190.858
1462 L X+50.647 Y+193.122
1463 L X+45.086 Y+195.32
1464 L X+39.284 Y+197.435
1465 L X+33.278 Y+199.447
1466 L X+27.116 Y+201.335
1467 L X+20.868 Y+203.072
1468 L X+14.592 Y+204.643
1469 L X+8.375 Y+206.027
1470 L X+2.276 Y+207.215
1471 L X-3.649 Y+208.203
1472 L X-9.35 Y+208.99
1473 L X-14.774 Y+209.577
1474 L X-20.58 Y+210.015
1475 L X-25.239 Y+210.205
1476 L X-29.555 Y+210.231
1477 L X-33.569 Y+210.104
1478 L X-37.326 Y+209.836
1479 L X-40.864 Y+209.434
1480 L X-44.216 Y+208.902
1481 L X-47.413 Y+208.245
1482 L X-50.481 Y+207.462
1483 L X-53.445 Y+206.551
1484 L X-56.329 Y+205.508
1485 L X-59.15 Y+204.328
1486 L X-61.897 Y+203.018
1487 L X-65.014 Y+201.328
1488 L X-67.714 Y+199.685
1489 L X-70.517 Y+197.803
1490 L X-73.402 Y+195.684
1491 L X-76.359 Y+193.32
1492 L X-79.378 Y+190.708
1493 L X-82.445 Y+187.847
1494 L X-85.541 Y+184.74
1495 L X-88.645 Y+181.398
1496 L X-91.723 Y+177.847
1497 L X-94.74 Y+174.118
1498 L X-97.663 Y+170.247
1499 L X-100.484 Y+166.242
1500 L X-101.62 Y+164.542
1501 L X-103.845 Y+161.035
1502 L X-105.66 Y+157.927
1503 L X-107.148 Y+155.112
1504 L X-108.357 Y+152.54
1505 L X-109.325 Y+150.174
1506 L X-110.081 Y+147.984
1507 L X-110.651 Y+145.944
1508 L X-111.057 Y+144.033
1509 L X-111.316 Y+142.228
1510 L X-111.443 Y+140.506
1511 L X-111.446 Y+138.846
1512 L X-111.331 Y+137.223
1513 L X-111.098 Y+135.621
1514 L X-110.734 Y+133.973
1515 L X-110.461 Y+133.014
1516 L X-109.871 Y+131.321
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1517 L X-109.12 Y+129.541
1518 L X-108.169 Y+127.621
1519 L X-106.998 Y+125.559
1520 L X-105.589 Y+123.357
1521 L X-103.925 Y+121.017
1522 L X-101.99 Y+118.546
1523 L X-99.769 Y+115.95
1524 L X-97.252 Y+113.238
1525 L X-94.432 Y+110.424
1526 L X-91.305 Y+107.523
1527 L X-87.875 Y+104.557
1528 L X-84.155 Y+101.55
1529 L X-80.165 Y+98.533
1530 L X-75.95 Y+95.551
1531 L X-71.574 Y+92.656
1532 L X-67.068 Y+89.873
1533 L X-65.044 Y+88.686
1534 L X-60.591 Y+86.214
1535 L X-56.252 Y+83.988
1536 L X-51.961 Y+81.968
1537 L X-47.688 Y+80.135
1538 L X-43.404 Y+78.473
1539 L X-39.089 Y+76.975
1540 L X-34.721 Y+75.63
1541 L X-30.282 Y+74.433
1542 L X-25.741 Y+73.375
1543 L X-21.063 Y+72.451
1544 L X-16.211 Y+71.655
1545 L X-11.145 Y+70.986
1546 L X-5.828 Y+70.444
1547 L X+1.167 Y+69.932
1548 L Z+60. FMAX
1549 L X+6.336 Y+134.539 FMAX
1550 L Z+39. FMAX
1551 FQ1
1552 L Z+30.
1553 Q22 = Q2*1.
1554 FQ22
1555 L X+10.014 Y+134.367
1556 L X+19.251 Y+135.64
1557 L X+8.936 Y+139.092
1558 L X-4.86 Y+142.547
1559 L X-17.198 Y+144.61
1560 L X-26.742 Y+145.341
1561 L X-32.314 Y+144.911
1562 L X-29.828 Y+143.341
1563 L X-23.177 Y+140.207
1564 L X-16.702 Y+137.957
1565 L X-9.84 Y+136.36
1566 L X+6.336 Y+134.539
1567 L X+5.697 Y+126.561
1568 L X+5.7 Y+126.56
1569 L X+10.328 Y+126.344
1570 L X+18.502 Y+127.369
1571 L X+45.773 Y+132.373
1572 L X+36.529 Y+137.228
1573 L X+24.904 Y+142.184
1574 L X+11.181 Y+146.777
1575 L X-3.226 Y+150.385
1576 L X-16.23 Y+152.559
1577 L X-26.556 Y+153.351
1578 L X-31.828 Y+153.191
1579 L X-35.556 Y+152.401
1580 L X-38.983 Y+150.368
1581 L X-42.909 Y+146.964
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1582 L X-45.732 Y+143.921
1583 L X-33.683 Y+136.314
1584 L X-26.203 Y+132.789
1585 L X-18.927 Y+130.261
1586 L X-11.199 Y+128.463
1587 L X+5.697 Y+126.561
1588 L X+5.059 Y+118.582
1589 L X+5.066 Y+118.581
1590 L X+10.641 Y+118.32
1591 L X+19.723 Y+119.46
1592 L X+59.6 Y+126.777
1593 L X+69.386 Y+127.823
1594 L X+53.84 Y+137.172
1595 L X+39.964 Y+144.46
1596 L X+27.746 Y+149.669
1597 L X+13.425 Y+154.462
1598 L X-1.592 Y+158.222
1599 L X-15.263 Y+160.508
1600 L X-26.371 Y+161.36
1601 L X-32.786 Y+161.166
1602 L X-38.505 Y+159.954
1603 L X-43.682 Y+156.882
1604 L X-48.479 Y+152.723
1605 L X-54.165 Y+146.594
1606 L X-57.124 Y+142.575
1607 L X-48.481 Y+135.948
1608 L X-37.477 Y+129.258
1609 L X-29.23 Y+125.371
1610 L X-21.152 Y+122.565
1611 L X-12.557 Y+120.565
1612 L X+5.059 Y+118.582
1613 L X+4.421 Y+110.603
1614 L X+4.431 Y+110.602
1615 L X+10.954 Y+110.297
1616 L X+20.944 Y+111.55
1617 L X+60.748 Y+118.854
1618 L X+81.949 Y+121.121
1619 L X+94.867 Y+121.834
1620 L X+57.765 Y+144.147
1621 L X+43.398 Y+151.693
1622 L X+30.589 Y+157.154
1623 L X+15.67 Y+162.147
1624 L X+0.042 Y+166.06
1625 L X-14.295 Y+168.458
1626 L X-26.185 Y+169.369
1627 L X-33.532 Y+169.147
1628 L X-38.221 Y+168.409
1629 L X-41.431 Y+167.424
1630 L X-44.661 Y+165.868
1631 L X-48.555 Y+163.245
1632 L X-54.048 Y+158.483
1633 L X-60.338 Y+151.703
1634 L X-67.806 Y+141.561
1635 L X-61.669 Y+135.882
1636 L X-52.981 Y+129.321
1637 L X-41.271 Y+122.202
1638 L X-32.256 Y+117.954
1639 L X-23.378 Y+114.869
1640 L X-13.916 Y+112.668
1641 L X+4.421 Y+110.603
1642 L X+3.782 Y+102.624
1643 L X+3.796 Y+102.623
1644 L X+11.268 Y+102.274
1645 L X+22.164 Y+103.641
1646 L X+61.897 Y+110.931
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1647 L X+82.596 Y+113.145
1648 L X+115.409 Y+114.956
1649 L X+121.171 Y+115.808
1650 L X+92.438 Y+132.496
1651 L X+61.701 Y+151.116
1652 L X+46.833 Y+158.926
1653 L X+33.432 Y+164.639
1654 L X+17.914 Y+169.832
1655 L X+1.675 Y+173.898
1656 L X-13.328 Y+176.407
1657 L X-26. Y+177.378
1658 L X-34.277 Y+177.128
1659 L X-40.025 Y+176.223
1660 L X-44.356 Y+174.895
1661 L X-48.653 Y+172.825
1662 L X-53.428 Y+169.608
1663 L X-59.617 Y+164.243
1664 L X-66.497 Y+156.826
1665 L X-74.212 Y+146.458
1666 L X-77.562 Y+140.706
1667 L X-73.605 Y+136.028
1668 L X-66.809 Y+129.738
1669 L X-57.48 Y+122.695
1670 L X-45.065 Y+115.146
1671 L X-35.282 Y+110.536
1672 L X-25.604 Y+107.173
1673 L X-15.275 Y+104.77
1674 L X+3.782 Y+102.624
1675 L X+3.144 Y+94.646
1676 L X+3.161 Y+94.644
1677 L X+11.581 Y+94.25
1678 L X+23.385 Y+95.731
1679 L X+63.046 Y+103.008
1680 L X+83.242 Y+105.168
1681 L X+116.216 Y+106.989
1682 L X+125.631 Y+108.38
1683 L X+131.65 Y+110.051
1684 L X+135.993 Y+111.999
1685 L X+139.494 Y+114.417
1686 L X+96.52 Y+139.377
1687 L X+65.637 Y+158.085
1688 L X+50.267 Y+166.158
1689 L X+36.275 Y+172.123
1690 L X+20.159 Y+177.517
1691 L X+3.309 Y+181.736
1692 L X-12.361 Y+184.356
1693 L X-25.815 Y+185.388
1694 L X-35.023 Y+185.109
1695 L X-41.829 Y+184.038
1696 L X-47.282 Y+182.365
1697 L X-52.644 Y+179.782
1698 L X-58.301 Y+175.971
1699 L X-65.186 Y+170.002
1700 L X-72.656 Y+161.949
1701 L X-80.89 Y+150.885
1702 L X-84.813 Y+144.206
1703 L X-86.366 Y+139.761
1704 L X-83.899 Y+135.736
1705 L X-79.376 Y+130.468
1706 L X-71.949 Y+123.595
1707 L X-61.98 Y+116.068
1708 L X-48.858 Y+108.09
1709 L X-38.309 Y+103.118
1710 L X-27.829 Y+99.478
1711 L X-16.633 Y+96.872
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1712 L X+3.144 Y+94.646
1713 L X+2.506 Y+86.671
1714 L X+2.677 Y+86.658
1715 L X+11.894 Y+86.227
1716 L X+24.606 Y+87.821
1717 L X+64.195 Y+95.086
1718 L X+83.888 Y+97.192
1719 L X+117.023 Y+99.021
1720 L X+127.292 Y+100.539
1721 L X+134.372 Y+102.504
1722 L X+139.937 Y+104.999
1723 L X+146.816 Y+109.753
1724 L X+151.918 Y+115.258
1725 L X+145.541 Y+120.157
1726 L X+100.602 Y+146.258
1727 L X+69.573 Y+165.054
1728 L X+53.701 Y+173.391
1729 L X+39.118 Y+179.608
1730 L X+22.403 Y+185.202
1731 L X+4.943 Y+189.574
1732 L X-11.393 Y+192.306
1733 L X-25.629 Y+193.397
1734 L X-35.769 Y+193.09
1735 L X-43.633 Y+191.852
1736 L X-50.208 Y+189.836
1737 L X-56.635 Y+186.739
1738 L X-63.174 Y+182.335
1739 L X-70.755 Y+175.762
1740 L X-78.816 Y+167.073
1741 L X-87.568 Y+155.312
1742 L X-92.043 Y+147.693
1743 L X-94.224 Y+142.034
1744 L X-94.479 Y+138.993
1745 L X-93.741 Y+136.485
1746 L X-90.385 Y+131.01
1747 L X-85.147 Y+124.908
1748 L X-77.089 Y+117.452
1749 L X-66.48 Y+109.441
1750 L X-52.652 Y+101.034
1751 L X-41.335 Y+95.701
1752 L X-30.054 Y+91.782
1753 L X-18.065 Y+88.992
1754 L X-4.241 Y+87.172
1755 L X+2.506 Y+86.671
1756 L X+1.868 Y+78.696
1757 L X+2.193 Y+78.672
1758 L X+12.208 Y+78.203
1759 L X+25.827 Y+79.912
1760 L X+65.344 Y+87.163
1761 L X+84.535 Y+89.215
1762 L X+117.83 Y+91.053
1763 L X+128.953 Y+92.697
1764 L X+137.094 Y+94.957
1765 L X+143.881 Y+98.
1766 L X+152.032 Y+103.633
1767 L X+158.051 Y+109.918
1768 L X+160.907 Y+114.723
1769 L X+161.424 Y+116.733
1770 L X+158.441 Y+120.335
1771 L X+150.045 Y+126.785
1772 L X+136.47 Y+134.898
1773 L X+104.666 Y+153.15
1774 L X+73.509 Y+172.023
1775 L X+57.136 Y+180.623
1776 L X+41.96 Y+187.093
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1777 L X+24.648 Y+192.887
1778 L X+6.577 Y+197.412
1779 L X-10.426 Y+200.255
1780 L X-25.444 Y+201.406
1781 L X-36.515 Y+201.071
1782 L X-45.437 Y+199.667
1783 L X-53.133 Y+197.306
1784 L X-60.627 Y+193.697
1785 L X-68.047 Y+188.698
1786 L X-76.325 Y+181.521
1787 L X-84.975 Y+172.196
1788 L X-94.246 Y+159.739
1789 L X-99.272 Y+151.181
1790 L X-102.101 Y+143.843
1791 L X-102.576 Y+138.17
1792 L X-101.117 Y+133.209
1793 L X-96.872 Y+126.284
1794 L X-90.917 Y+119.349
1795 L X-82.229 Y+111.308
1796 L X-70.98 Y+102.814
1797 L X-56.446 Y+93.978
1798 L X-44.361 Y+88.283
1799 L X-32.28 Y+84.086
1800 L X-19.497 Y+81.111
1801 L X-5.061 Y+79.211
1802 L X+1.868 Y+78.696
1803 L X+1.23 Y+70.729
1804 L X+1.243 Y+70.728
1805 L X+4.142 Y+70.388
1806 L X+6.814 Y+70.203
1807 L X+9.6 Y+70.142
1808 L X+12.56 Y+70.209
1809 L X+15.742 Y+70.417
1810 L X+18.707 Y+70.724
1811 L X+22.426 Y+71.236
1812 L X+27.219 Y+72.034
1813 L X+33.746 Y+73.255
1814 L X+44.52 Y+75.378
1815 L X+52.052 Y+76.821
1816 L X+59.558 Y+78.153
1817 L X+66.496 Y+79.246
1818 L X+72.939 Y+80.107
1819 L X+79.002 Y+80.755
1820 L X+85.072 Y+81.233
1821 L X+92.172 Y+81.63
1822 L X+107.823 Y+82.317
1823 L X+113.591 Y+82.667
1824 L X+118.621 Y+83.092
1825 L X+123.045 Y+83.598
1826 L X+127.005 Y+84.189
1827 L X+130.599 Y+84.866
1828 L X+133.895 Y+85.631
1829 L X+136.946 Y+86.483
1830 L X+139.79 Y+87.422
1831 L X+142.444 Y+88.446
1832 L X+145.304 Y+89.73
1833 L X+147.737 Y+90.988
1834 L X+150.194 Y+92.422
1835 L X+152.624 Y+94.011
1836 L X+154.983 Y+95.73
1837 L X+157.224 Y+97.543
1838 L X+159.312 Y+99.418
1839 L X+161.221 Y+101.322
1840 L X+162.932 Y+103.221
1841 L X+164.432 Y+105.087
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1842 L X+165.716 Y+106.89
1843 L X+166.786 Y+108.606
1844 L X+167.65 Y+110.215
1845 L X+168.32 Y+111.701
1846 L X+168.814 Y+113.052
1847 L X+169.152 Y+114.262
1848 L X+169.358 Y+115.332
1849 L X+169.455 Y+116.267
1850 L X+169.464 Y+117.078
1851 L X+169.385 Y+117.965
1852 L X+169.204 Y+118.745
1853 L X+168.962 Y+119.466
1854 L X+168.604 Y+120.277
1855 L X+168.101 Y+121.196
1856 L X+167.419 Y+122.233
1857 L X+166.526 Y+123.398
1858 L X+165.387 Y+124.695
1859 L X+163.962 Y+126.129
1860 L X+162.213 Y+127.707
1861 L X+160.089 Y+129.44
1862 L X+157.534 Y+131.345
1863 L X+154.465 Y+133.454
1864 L X+150.765 Y+135.818
1865 L X+146.227 Y+138.541
1866 L X+140.395 Y+141.869
1867 L X+124.667 Y+150.608
1868 L X+117.238 Y+154.918
1869 L X+108.826 Y+159.983
1870 L X+91.174 Y+170.852
1871 L X+83.975 Y+175.191
1872 L X+77.461 Y+178.979
1873 L X+71.504 Y+182.283
1874 L X+65.92 Y+185.213
1875 L X+60.576 Y+187.846
1876 L X+55.62 Y+190.127
1877 L X+50.343 Y+192.382
1878 L X+44.801 Y+194.572
1879 L X+39.02 Y+196.68
1880 L X+33.034 Y+198.686
1881 L X+26.891 Y+200.567
1882 L X+20.664 Y+202.299
1883 L X+14.408 Y+203.865
1884 L X+8.211 Y+205.244
1885 L X+2.133 Y+206.428
1886 L X-3.77 Y+207.412
1887 L X-9.448 Y+208.196
1888 L X-14.847 Y+208.781
1889 L X-20.626 Y+209.217
1890 L X-25.257 Y+209.405
1891 L X-29.544 Y+209.431
1892 L X-33.528 Y+209.305
1893 L X-37.252 Y+209.039
1894 L X-40.756 Y+208.641
1895 L X-44.073 Y+208.115
1896 L X-47.233 Y+207.465
1897 L X-50.264 Y+206.691
1898 L X-53.192 Y+205.792
1899 L X-56.039 Y+204.763
1900 L X-58.823 Y+203.598
1901 L X-61.534 Y+202.304
1902 L X-64.615 Y+200.634
1903 L X-67.283 Y+199.011
1904 L X-70.057 Y+197.148
1905 L X-72.915 Y+195.048
1906 L X-75.847 Y+192.705
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1907 L X-78.844 Y+190.113
1908 L X-81.888 Y+187.272
1909 L X-84.964 Y+184.186
1910 L X-88.05 Y+180.864
1911 L X-91.109 Y+177.333
1912 L X-94.11 Y+173.625
1913 L X-97.017 Y+169.776
1914 L X-99.824 Y+165.79
1915 L X-100.95 Y+164.106
1916 L X-103.162 Y+160.619
1917 L X-104.961 Y+157.538
1918 L X-106.432 Y+154.755
1919 L X-107.624 Y+152.218
1920 L X-108.576 Y+149.892
1921 L X-109.317 Y+147.745
1922 L X-109.874 Y+145.753
1923 L X-110.269 Y+143.893
1924 L X-110.521 Y+142.141
1925 L X-110.643 Y+140.476
1926 L X-110.646 Y+138.873
1927 L X-110.535 Y+137.309
1928 L X-110.31 Y+135.765
1929 L X-109.958 Y+134.169
1930 L X-109.698 Y+133.256
1931 L X-109.124 Y+131.608
1932 L X-108.392 Y+129.875
1933 L X-107.462 Y+127.996
1934 L X-106.313 Y+125.972
1935 L X-104.926 Y+123.804
1936 L X-103.284 Y+121.496
1937 L X-101.371 Y+119.053
1938 L X-99.172 Y+116.482
1939 L X-96.676 Y+113.794
1940 L X-93.877 Y+111.001
1941 L X-90.771 Y+108.119
1942 L X-87.362 Y+105.171
1943 L X-83.662 Y+102.18
1944 L X-79.693 Y+99.179
1945 L X-75.498 Y+96.211
1946 L X-71.143 Y+93.33
1947 L X-66.655 Y+90.558
1948 L X-64.647 Y+89.381
1949 L X-60.214 Y+86.92
1950 L X-55.899 Y+84.706
1951 L X-51.633 Y+82.698
1952 L X-47.386 Y+80.875
1953 L X-43.129 Y+79.225
1954 L X-38.84 Y+77.735
1955 L X-34.499 Y+76.398
1956 L X-30.088 Y+75.209
1957 L X-25.573 Y+74.157
1958 L X-20.92 Y+73.238
1959 L X-16.094 Y+72.446
1960 L X-11.052 Y+71.78
1961 L X-5.759 Y+71.241
1962 L X+1.23 Y+70.729
1963 L X+1.167 Y+69.932
1964 L X+4.067 Y+69.591
1965 L X+6.777 Y+69.404
1966 L X+9.601 Y+69.342
1967 L X+12.595 Y+69.41
1968 L X+15.809 Y+69.62
1969 L X+18.803 Y+69.93
1970 L X+22.546 Y+70.445
1971 L X+27.358 Y+71.246
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1972 L X+33.897 Y+72.469
1973 L X+44.673 Y+74.593
1974 L X+52.197 Y+76.034
1975 L X+59.69 Y+77.364
1976 L X+66.611 Y+78.454
1977 L X+73.034 Y+79.312
1978 L X+79.076 Y+79.958
1979 L X+85.126 Y+80.434
1980 L X+92.212 Y+80.831
1981 L X+107.864 Y+81.518
1982 L X+113.648 Y+81.869
1983 L X+118.7 Y+82.296
1984 L X+123.15 Y+82.804
1985 L X+127.138 Y+83.4
1986 L X+130.763 Y+84.083
1987 L X+134.093 Y+84.856
1988 L X+137.179 Y+85.717
1989 L X+140.06 Y+86.669
1990 L X+142.752 Y+87.707
1991 L X+145.652 Y+89.01
1992 L X+148.122 Y+90.287
1993 L X+150.615 Y+91.742
1994 L X+153.079 Y+93.353
1995 L X+155.47 Y+95.095
1996 L X+157.743 Y+96.934
1997 L X+159.862 Y+98.837
1998 L X+161.801 Y+100.77
1999 L X+163.541 Y+102.703
2000 L X+165.07 Y+104.604
2001 L X+166.382 Y+106.446
2002 L X+167.479 Y+108.205
2003 L X+168.367 Y+109.861
2004 L X+169.061 Y+111.398
2005 L X+169.576 Y+112.806
2006 L X+169.932 Y+114.078
2007 L X+170.151 Y+115.215
2008 L X+170.255 Y+116.221
2009 L X+170.265 Y+117.109
2010 L X+170.177 Y+118.092
2011 L X+169.975 Y+118.963
2012 L X+169.709 Y+119.756
2013 L X+169.322 Y+120.631
2014 L X+168.787 Y+121.608
2015 L X+168.072 Y+122.697
2016 L X+167.145 Y+123.906
2017 L X+165.971 Y+125.241
2018 L X+164.514 Y+126.708
2019 L X+162.734 Y+128.314
2020 L X+160.582 Y+130.07
2021 L X+157.999 Y+131.996
2022 L X+154.907 Y+134.121
2023 L X+151.186 Y+136.498
2024 L X+146.631 Y+139.232
2025 L X+140.788 Y+142.566
2026 L X+125.062 Y+151.304
2027 L X+117.646 Y+155.607
2028 L X+109.242 Y+160.666
2029 L X+91.59 Y+171.535
2030 L X+84.383 Y+175.88
2031 L X+77.856 Y+179.675
2032 L X+71.884 Y+182.987
2033 L X+66.283 Y+185.927
2034 L X+60.92 Y+188.569
2035 L X+55.944 Y+190.858
2036 L X+50.647 Y+193.122
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2037 L X+45.086 Y+195.32
2038 L X+39.284 Y+197.435
2039 L X+33.278 Y+199.447
2040 L X+27.116 Y+201.335
2041 L X+20.868 Y+203.072
2042 L X+14.592 Y+204.643
2043 L X+8.375 Y+206.027
2044 L X+2.276 Y+207.215
2045 L X-3.649 Y+208.203
2046 L X-9.35 Y+208.99
2047 L X-14.774 Y+209.577
2048 L X-20.58 Y+210.015
2049 L X-25.239 Y+210.205
2050 L X-29.555 Y+210.231
2051 L X-33.569 Y+210.104
2052 L X-37.326 Y+209.836
2053 L X-40.864 Y+209.434
2054 L X-44.216 Y+208.902
2055 L X-47.413 Y+208.245
2056 L X-50.481 Y+207.462
2057 L X-53.445 Y+206.551
2058 L X-56.329 Y+205.508
2059 L X-59.15 Y+204.328
2060 L X-61.897 Y+203.018
2061 L X-65.014 Y+201.328
2062 L X-67.714 Y+199.685
2063 L X-70.517 Y+197.803
2064 L X-73.402 Y+195.684
2065 L X-76.359 Y+193.32
2066 L X-79.378 Y+190.708
2067 L X-82.445 Y+187.847
2068 L X-85.541 Y+184.74
2069 L X-88.645 Y+181.398
2070 L X-91.723 Y+177.847
2071 L X-94.74 Y+174.118
2072 L X-97.663 Y+170.247
2073 L X-100.484 Y+166.242
2074 L X-101.62 Y+164.542
2075 L X-103.845 Y+161.035
2076 L X-105.66 Y+157.927
2077 L X-107.148 Y+155.112
2078 L X-108.357 Y+152.54
2079 L X-109.325 Y+150.174
2080 L X-110.081 Y+147.984
2081 L X-110.651 Y+145.944
2082 L X-111.057 Y+144.033
2083 L X-111.316 Y+142.228
2084 L X-111.443 Y+140.506
2085 L X-111.446 Y+138.846
2086 L X-111.331 Y+137.223
2087 L X-111.098 Y+135.621
2088 L X-110.734 Y+133.973
2089 L X-110.461 Y+133.014
2090 L X-109.871 Y+131.321
2091 L X-109.12 Y+129.541
2092 L X-108.169 Y+127.621
2093 L X-106.998 Y+125.559
2094 L X-105.589 Y+123.357
2095 L X-103.925 Y+121.017
2096 L X-101.99 Y+118.546
2097 L X-99.769 Y+115.95
2098 L X-97.252 Y+113.238
2099 L X-94.432 Y+110.424
2100 L X-91.305 Y+107.523
2101 L X-87.875 Y+104.557
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2102 L X-84.155 Y+101.55
2103 L X-80.165 Y+98.533
2104 L X-75.95 Y+95.551
2105 L X-71.574 Y+92.656
2106 L X-67.068 Y+89.873
2107 L X-65.044 Y+88.686
2108 L X-60.591 Y+86.214
2109 L X-56.252 Y+83.988
2110 L X-51.961 Y+81.968
2111 L X-47.688 Y+80.135
2112 L X-43.404 Y+78.473
2113 L X-39.089 Y+76.975
2114 L X-34.721 Y+75.63
2115 L X-30.282 Y+74.433
2116 L X-25.741 Y+73.375
2117 L X-21.063 Y+72.451
2118 L X-16.211 Y+71.655
2119 L X-11.145 Y+70.986
2120 L X-5.828 Y+70.444
2121 L X+1.167 Y+69.932
2122 L Z+60. FMAX
2123 L Z+60. R0 FMAX
2124 M9
2125 ; T66  NAVRTAVACEK - PRUM 2.5
2126 ; -- DEFINICE POSUVU PRO NASTROJ
2127 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
2128 TOOL CALL 66 Z S3820
2129 L M6
2130 L Z+60. R0 FMAX M8
2131 L X-200. Y+200. FMAX M3
2132 CYCL DEF 200 VRTANI ~
Q200=+5. ;BEZPEC.VZDAL. ~
Q201=-5.178 ;HLOUBKA ~
Q206=+412.53 ;POSUV PRISUVU DO HL. ~
Q202=+5.178 ;PRISUV ~
Q210=0 ;CAS.PRODLEVA NAHORE ~
Q203=+50. ;SOURADNICE POVRCHU ~
Q204=+10. ;2.BEZP.VZDAL. ~
Q211=0 ;CAS.PRODLEVA DOLE
2133 L X-200. Y+200. FMAX M99
2134 L Y+50. FMAX M99
2135 L X+200. FMAX M99
2136 L Y+200. FMAX M99
2137 L Z+60. R0 FMAX
2138 L Z+60. R0 FMAX
2139 M9
2140 ; T38  VRTAK - PRUM 20.
2141 ; -- DEFINICE POSUVU PRO NASTROJ
2142 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
2143 TOOL CALL 38 Z S477
2144 L M6
2145 L Z+60. R0 FMAX M8
2146 L X-200. Y+200. FMAX M3
2147 CYCL DEF 200 VRTANI ~
Q200=+5. ;BEZPEC.VZDAL. ~
Q201=-58.61 ;HLOUBKA ~
Q206=+183.347 ;POSUV PRISUVU DO HL. ~
Q202=+58.61 ;PRISUV ~
Q210=0 ;CAS.PRODLEVA NAHORE ~
Q203=+50. ;SOURADNICE POVRCHU ~
Q204=+10. ;2.BEZP.VZDAL. ~
Q211=0 ;CAS.PRODLEVA DOLE
2148 L X-200. Y+200. FMAX M99
2149 L Y+50. FMAX M99
2150 L X+200. FMAX M99
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2151 L Y+200. FMAX M99
2152 L Z+60. R0 FMAX
2153 L Z+60. R0 FMAX
2154 M9
2155 ; T273  VALCOVY ZAHLUBNIK - PRUM 26.
2156 ; -- DEFINICE POSUVU PRO NASTROJ
2157 FN 0: Q3 = 20000 ;(PLYNULY RYCHLOPOSUV)
2158 TOOL CALL 273 Z S367
2159 L M6
2160 L Z+60. R0 FMAX M8
2161 L X-200. Y+200. FMAX M3
2162 CYCL DEF 200 VRTANI ~
Q200=+5. ;BEZPEC.VZDAL. ~
Q201=-32. ;HLOUBKA ~
Q206=+881.474 ;POSUV PRISUVU DO HL. ~
Q202=+32. ;PRISUV ~
Q210=0 ;CAS.PRODLEVA NAHORE ~
Q203=+50. ;SOURADNICE POVRCHU ~
Q204=+10. ;2.BEZP.VZDAL. ~
Q211=0 ;CAS.PRODLEVA DOLE
2163 L X-200. Y+200. FMAX M99
2164 L Y+50. FMAX M99
2165 L X+200. FMAX M99
2166 L Y+200. FMAX M99
2167 L Z+60. R0 FMAX
2168 L R0 FMAX
2169 M9
2170 M2
2171 END PGM cviceni3Nastavení_Jedna MM
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