```
Run number: 1
Starting 24 point test
Calculating with integers
Scale: 500

Sorted points
0 10 184
1 36 169
2 44 324
3 192 239
4 212 312
5 219 149
6 231 260
7 264 240
8 272 424
9 274 296
10 284 196
11 301 429
12 323 192
13 358 422
14 389 70
15 390 339
16 396 406
17 400 400
18 416 479
19 435 435
20 446 28
21 463 418
22 482 136
23 489 237

nSites: 24
 -> Adding p#0 (10, 184)

BF tree at end of point added:
R---- H1 n#0  nil   nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0)

 -> Adding p#1 (36, 169) into n#0

BF tree at end of point added:
R---- H2 n#0  -  nil   next n#1
    R---- H1 n#1  prior n#0  next n#2
        R---- H1 n#2  prior n#1  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,169) #1(p1;169,169) #2(p0;169,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,240) (0,1) #2(p0,480) (1,0)

 -> Adding p#2 (44, 324) into n#2

At x=44  Adding: e#0, X=144 (63,245) for n#2; prior n#1  next n#3

BF tree at end of point added:
R---- H3 n#2  prior n#1  next n#3
    L---- H2 n#0  -  nil   next n#1
    |    R---- H1 n#1  prior n#0  next n#2
    R---- H1 n#3  prior n#2  next n#4
        R---- H1 n#4  prior n#3  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,145) #1(p1;145,183) #2(p0;183,324) #3(p2;324,324) #4(p0;324,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,240) (0,1) #2(p0,480) (1,2) #3(p2,720) (2,3) #4(p0,960) (3,0)
Priority queue:
R----H1 e#0 X=144; n#2

At x=144 Removing: e#0 n#2 p#(1,0,2) center: (63,245)

 -> Adding p#3 (192, 239) into n#1

At x=192  Adding: e#1, X=192 (96,244) for n#6; prior n#5  next n#3
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BF tree at end of point added:
R---- H3 n#3  prior n#6  next n#4
    L---- H2 n#1  prior n#0  next n#5
    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H1 n#5  prior n#1  next n#6
    |        R---- H1 n#6  prior n#5  next n#3
    R---- H1 n#4  prior n#3  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-116) #1(p1;-116,239) #5(p3;239,239) #6(p1;239,244) #3(p2;244,1629) #4(p0;1629,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,5) #5(p3,426) (5,6) #6(p1,533) (6,4) #3(p2,640) (4,3) #4(p0,960) (3,0)
Priority queue:
R----H1 e#1 X=192; n#6

At x=192 Removing: e#1 n#6 p#(3,1,2) center: (96,244)

 -> Adding p#4 (212, 312) into n#3

At x=212  Adding: e#2, X=213 (126,296) for n#3; prior n#5  next n#7

BF tree at end of point added:
R---- H3 n#3  prior n#5  next n#7
    L---- H2 n#1  prior n#0  next n#5
    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H1 n#5  prior n#1  next n#3
    R---- H2 n#8  prior n#7  next n#4
        L---- H1 n#7  prior n#3  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-150) #1(p1;-150,183) #5(p3;183,294) #3(p2;294,312) #7(p4;312,312) #8(p2;312,1796)
#4(p0;1796,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,5) #5(p3,533) (5,7) #3(p2,746) (7,8) #7(p4,817) (8,9) #8(p2,888) (9,3)
#4(p0,960) (3,0)
Priority queue:
R----H1 e#2 X=213; n#3

At x=213 Removing: e#2 n#3 p#(3,2,4) center: (126,296)

 -> Adding p#5 (219, 149) into n#1

At x=219  Adding: e#3, X=222 (129,171) for n#10; prior n#9  next n#5

BF tree at end of point added:
R---- H4 n#7  prior n#5  next n#8
    L---- H3 n#1  prior n#0  next n#9
    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#10  prior n#9  next n#5
    |        L---- H1 n#9  prior n#1  next n#10
    |        R---- H1 n#5  prior n#10  next n#7
    R---- H2 n#8  prior n#7  next n#4
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-162) #1(p1;-162,149) #9(p5;149,149) #10(p1;149,174) #5(p3;174,286) #7(p4;286,347)
#8(p2;347,1855) #4(p0;1855,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,383) (11,12) #10(p1,446) (12,5) #5(p3,509) (5,10) #7(p4,699)
(10,9) #8(p2,888) (9,3) #4(p0,960) (3,0)
Priority queue:
R----H1 e#3 X=222; n#10

At x=222 Removing: e#3 n#10 p#(5,1,3) center: (129,171)


At x=222  Adding: e#4, X=500 (346,236) for n#5; prior n#9  next n#7
 -> Adding p#6 (231, 260) into n#5
At x=231  Invalid: e#4 n#5

At x=231  Adding: e#5, X=293 (236,203) for n#5; prior n#9  next n#11

At x=231  Adding: e#6, X=235 (197,277) for n#12; prior n#11  next n#7

BF tree at end of point added:
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R---- H4 n#7  prior n#12  next n#8
    L---- H3 n#1  prior n#0  next n#9
    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#5  prior n#9  next n#11
    |        L---- H1 n#9  prior n#1  next n#5
    |        R---- H1 n#11  prior n#5  next n#12
    |            R---- H1 n#12  prior n#11  next n#7
    R---- H2 n#8  prior n#7  next n#4
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-183) #1(p1;-183,99) #9(p5;99,184) #5(p3;184,260) #11(p6;260,260) #12(p3;260,278)
#7(p4;278,370) #8(p2;370,1955) #4(p0;1955,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,446) (11,13) #5(p3,572) (13,14) #11(p6,614) (14,15) #12(p3,657)
(15,10) #7(p4,699) (10,9) #8(p2,888) (9,3) #4(p0,960) (3,0)
Priority queue:
R----H2 e#5 X=293; n#5
     L----H1 e#6 X=235; n#12

At x=235 Removing: e#6 n#12 p#(6,3,4) center: (197,277)

 -> Adding p#7 (264, 240) into n#11

At x=264  Adding: e#7, X=270 (228,218) for n#11; prior n#5  next n#13

At x=264  Adding: e#8, X=354 (283,308) for n#14; prior n#13  next n#7

BF tree at end of point added:
R---- H4 n#7  prior n#14  next n#8
    L---- H3 n#5  prior n#9  next n#11
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    |    R---- H1 n#9  prior n#1  next n#5
    |    R---- H2 n#11  prior n#5  next n#13
    |        R---- H1 n#13  prior n#11  next n#14
    |            R---- H1 n#14  prior n#13  next n#7
    R---- H2 n#8  prior n#7  next n#4
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-240) #1(p1;-240,42) #9(p5;42,197) #5(p3;197,222) #11(p6;222,240) #13(p7;240,240)
#14(p6;240,290) #7(p4;290,416) #8(p2;416,2232) #4(p0;2232,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,446) (11,13) #5(p3,572) (13,14) #11(p6,678) (14,17) #13(p7,713)
(17,18) #14(p6,748) (18,16) #7(p4,783) (16,9) #8(p2,888) (9,3) #4(p0,960) (3,0)
Priority queue:
R----H2 e#5 X=293; n#5
     L----H1 e#7 X=270; n#11
     R----H1 e#8 X=354; n#14

At x=270 Removing: e#7 n#11 p#(3,6,7) center: (228,218)

At x=270  Invalid: e#5 n#5

At x=270  Adding: e#9, X=281 (229,201) for n#5; prior n#9  next n#13
 -> Adding p#8 (272, 424) into n#7

At x=272  Adding: e#10, X=438 (325,324) for n#7; prior n#14  next n#15

At x=272  Adding: e#11, X=272 (136,425) for n#16; prior n#15  next n#8

BF tree at end of point added:
R---- H4 n#7  prior n#14  next n#15
    L---- H3 n#5  prior n#9  next n#13
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    |    R---- H1 n#9  prior n#1  next n#5
    |    R---- H1 n#13  prior n#5  next n#14
    |        R---- H1 n#14  prior n#13  next n#7
    R---- H3 n#8  prior n#16  next n#4
        L---- H2 n#15  prior n#7  next n#16
        |    R---- H1 n#16  prior n#15  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
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#0(p0;nil,-254) #1(p1;-254,31) #9(p5;31,199) #5(p3;199,215) #13(p7;215,256) #14(p6;256,292)
#7(p4;292,424) #15(p8;424,424) #16(p4;424,425) #8(p2;425,2298) #4(p0;2298,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,446) (11,13) #5(p3,547) (13,19) #13(p7,647) (19,18) #14(p6,748)
(18,16) #7(p4,783) (16,20) #15(p8,818) (20,21) #16(p4,853) (21,9) #8(p2,888) (9,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#8 X=354; n#14
     L----H2 e#9 X=281; n#5
     |    L----H1 e#11 X=272; n#16
     R----H1 e#10 X=438; n#7

At x=272 Removing: e#11 n#16 p#(8,4,2) center: (136,425)

 -> Adding p#9 (274, 296) into n#7
At x=274  Invalid: e#10 n#7

At x=274  Adding: e#12, X=274 (240,293) for n#7; prior n#14  next n#17

At x=274  Adding: e#13, X=323 (257,360) for n#18; prior n#17  next n#15

BF tree at end of point added:
R---- H4 n#7  prior n#14  next n#17
    L---- H3 n#5  prior n#9  next n#13
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    |    R---- H1 n#9  prior n#1  next n#5
    |    R---- H1 n#13  prior n#5  next n#14
    |        R---- H1 n#14  prior n#13  next n#7
    R---- H3 n#8  prior n#15  next n#4
        L---- H2 n#18  prior n#17  next n#15
        |    L---- H1 n#17  prior n#7  next n#18
        |    R---- H1 n#15  prior n#18  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-258) #1(p1;-258,28) #9(p5;28,199) #5(p3;199,212) #13(p7;212,258) #14(p6;258,293)
#7(p4;293,296) #17(p9;296,296) #18(p4;296,404) #15(p8;404,448) #8(p2;448,2315) #4(p0;2315,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,446) (11,13) #5(p3,547) (13,19) #13(p7,647) (19,18) #14(p6,748)
(18,16) #7(p4,783) (16,23) #17(p9,803) (23,24) #18(p4,822) (24,20) #15(p8,842) (20,22) #8(p2,901)
(22,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#9 X=281; n#5
     L----H1 e#12 X=274; n#7
     R----H2 e#8 X=354; n#14
          L----H1 e#13 X=323; n#18

At x=274 Removing: e#12 n#7 p#(6,4,9) center: (240,293)

At x=274  Invalid: e#8 n#14

At x=274  Adding: e#14, X=289 (259,270) for n#14; prior n#13  next n#17
At x=281 Removing: e#9 n#5 p#(5,3,7) center: (229,201)

 -> Adding p#10 (284, 196) into n#9

At x=284  Adding: e#15, X=284 (232,199) for n#20; prior n#19  next n#13

BF tree at end of point added:
R---- H4 n#17  prior n#14  next n#18
    L---- H3 n#9  prior n#1  next n#19
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#13  prior n#20  next n#14
    |        L---- H1 n#19  prior n#9  next n#20
    |        |    R---- H1 n#20  prior n#19  next n#13
    |        R---- H1 n#14  prior n#13  next n#17
    R---- H3 n#8  prior n#15  next n#4
        L---- H2 n#18  prior n#17  next n#15
        |    R---- H1 n#15  prior n#18  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-275) #1(p1;-275,14) #9(p5;14,196) #19(p10;196,196) #20(p5;196,199) #13(p7;199,266)
#14(p6;266,274) #17(p9;274,321) #18(p4;321,384) #15(p8;384,488) #8(p2;488,2399) #4(p0;2399,nil)
Beach front (nodeID, index, s0/s1:
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#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,448) (11,27) #19(p10,491) (27,28) #20(p5,534) (28,26)
#13(p7,577) (26,18) #14(p6,706) (18,25) #17(p9,764) (25,24) #18(p4,822) (24,20) #15(p8,842) (20,22)
#8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H2 e#14 X=289; n#14
     L----H1 e#15 X=284; n#20
     R----H1 e#13 X=323; n#18

At x=284 Removing: e#15 n#20 p#(10,5,7) center: (232,199)

At x=289 Removing: e#14 n#14 p#(7,6,9) center: (259,270)


At x=289  Adding: e#16, X=440 (352,253) for n#13; prior n#19  next n#17
 -> Adding p#11 (301, 429) into n#15

At x=301  Adding: e#17, X=395 (302,336) for n#15; prior n#18  next n#21

BF tree at end of point added:
R---- H4 n#17  prior n#13  next n#18
    L---- H3 n#9  prior n#1  next n#19
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#13  prior n#19  next n#17
    |        L---- H1 n#19  prior n#9  next n#13
    R---- H3 n#8  prior n#22  next n#4
        L---- H2 n#15  prior n#18  next n#21
        |    L---- H1 n#18  prior n#17  next n#15
        |    R---- H1 n#21  prior n#15  next n#22
        |        R---- H1 n#22  prior n#21  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-304) #1(p1;-304,-8) #9(p5;-8,162) #19(p10;162,219) #13(p7;219,267) #17(p9;267,340)
#18(p4;340,371) #15(p8;371,429) #21(p11;429,429) #22(p8;429,531) #8(p2;531,2541) #4(p0;2541,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,448) (11,27) #19(p10,534) (27,29) #13(p7,630) (29,30)
#17(p9,726) (30,24) #18(p4,822) (24,20) #15(p8,842) (20,31) #21(p11,861) (31,32) #22(p8,881) (32,22)
#8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H2 e#17 X=395; n#15
     L----H1 e#13 X=323; n#18
     R----H1 e#16 X=440; n#13

 -> Adding p#12 (323, 192) into n#19

At x=323  Adding: e#18, X=380 (295,112) for n#19; prior n#9  next n#23

At x=323  Adding: e#19, X=352 (308,233) for n#24; prior n#23  next n#13

BF tree at end of point added:
R---- H4 n#17  prior n#13  next n#18
    L---- H3 n#9  prior n#1  next n#19
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#19  next n#24
    |        L---- H1 n#19  prior n#9  next n#23
    |        R---- H2 n#13  prior n#24  next n#17
    |            L---- H1 n#24  prior n#23  next n#13
    R---- H3 n#8  prior n#22  next n#4
        L---- H2 n#15  prior n#18  next n#21
        |    L---- H1 n#18  prior n#17  next n#15
        |    R---- H1 n#21  prior n#15  next n#22
        |        R---- H1 n#22  prior n#21  next n#8
        R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-343) #1(p1;-343,-36) #9(p5;-36,146) #19(p10;146,192) #23(p12;192,192) #24(p10;192,226)
#13(p7;226,265) #17(p9;265,360) #18(p4;360,360) #15(p8;360,399) #21(p11;399,467) #22(p8;467,577)
#8(p2;577,2725) #4(p0;2725,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,448) (11,27) #19(p10,534) (27,33) #23(p12,566) (33,34)
#24(p10,598) (34,29) #13(p7,630) (29,30) #17(p9,726) (30,24) #18(p4,822) (24,20) #15(p8,842) (20,31)
#21(p11,861) (31,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#17 X=395; n#15
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     L----H2 e#19 X=352; n#24
     |    L----H1 e#13 X=323; n#18
     |    R----H1 e#18 X=380; n#19
     R----H1 e#16 X=440; n#13

At x=323 Removing: e#13 n#18 p#(9,4,8) center: (257,360)

At x=323  Invalid: e#17 n#15

At x=323  Adding: e#20, X=367 (298,360) for n#15; prior n#17  next n#21
At x=352 Removing: e#19 n#24 p#(12,10,7) center: (308,233)

At x=352  Invalid: e#16 n#13

At x=352  Adding: e#21, X=393 (327,258) for n#13; prior n#23  next n#17
 -> Adding p#13 (358, 422) into n#21

At x=358  Adding: e#22, X=461 (312,280) for n#21; prior n#15  next n#25

BF tree at end of point added:
R---- H4 n#17  prior n#13  next n#15
    L---- H3 n#9  prior n#1  next n#19
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#19  next n#13
    |        L---- H1 n#19  prior n#9  next n#23
    |        R---- H1 n#13  prior n#23  next n#17
    R---- H3 n#26  prior n#25  next n#22
        L---- H2 n#21  prior n#15  next n#25
        |    L---- H1 n#15  prior n#17  next n#21
        |    R---- H1 n#25  prior n#21  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-403) #1(p1;-403,-79) #9(p5;-79,124) #19(p10;124,137) #23(p12;137,237) #13(p7;237,261)
#17(p9;261,360) #15(p8;360,368) #21(p11;368,422) #25(p13;422,422) #26(p11;422,510) #22(p8;510,641)
#8(p2;641,3018) #4(p0;3018,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,448) (11,27) #19(p10,534) (27,33) #23(p12,592) (33,36)
#13(p7,649) (36,30) #17(p9,707) (30,35) #15(p8,784) (35,31) #21(p11,861) (31,37) #25(p13,868) (37,38)
#26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#18 X=380; n#19
     L----H1 e#20 X=367; n#15
     R----H2 e#21 X=393; n#13
          R----H1 e#22 X=461; n#21

At x=367 Removing: e#20 n#15 p#(9,8,11) center: (298,360)


At x=367  Adding: e#23, X=8375 (4290,-450) for n#17; prior n#13  next n#21
At x=367  Invalid: e#22 n#21

At x=367  Adding: e#24, X=397 (321,356) for n#21; prior n#17  next n#25
At x=380 Removing: e#18 n#19 p#(5,10,12) center: (295,112)

 -> Adding p#14 (389, 70) into n#9

At x=389  Adding: e#25, X=638 (66,-402) for n#9; prior n#1  next n#27

At x=389  Adding: e#26, X=394 (300,101) for n#28; prior n#27  next n#23

BF tree at end of point added:
R---- H5 n#17  prior n#13  next n#21
    L---- H4 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H3 n#23  prior n#28  next n#13
    |        L---- H2 n#27  prior n#9  next n#28
    |        |    R---- H1 n#28  prior n#27  next n#23
    |        R---- H1 n#13  prior n#23  next n#17
    R---- H3 n#26  prior n#25  next n#22
        L---- H2 n#21  prior n#17  next n#25
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        |    R---- H1 n#25  prior n#21  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-457) #1(p1;-457,-116) #9(p5;-116,70) #27(p14;70,70) #28(p5;70,105) #23(p12;105,255)
#13(p7;255,258) #17(p9;258,357) #21(p11;357,366) #25(p13;366,471) #26(p11;471,547) #22(p8;547,695)
#8(p2;695,3277) #4(p0;3277,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,466) (41,42) #28(p5,503) (42,40)
#23(p12,539) (40,36) #13(p7,649) (36,30) #17(p9,722) (30,39) #21(p11,795) (39,37) #25(p13,868) (37,38)
#26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#24 X=397; n#21
     L----H2 e#21 X=393; n#13
     |    R----H1 e#26 X=394; n#28
     R----H2 e#23 X=8375; n#17
          L----H1 e#25 X=638; n#9

 -> Adding p#15 (390, 339) into n#17
At x=390  Invalid: e#23 n#17

At x=390  Adding: e#27, X=449 (356,252) for n#17; prior n#13  next n#29

At x=390  Adding: e#28, X=392 (318,356) for n#30; prior n#29  next n#21

BF tree at end of point added:
R---- H5 n#17  prior n#13  next n#29
    L---- H4 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H3 n#23  prior n#28  next n#13
    |         L---- H2 n#27  prior n#9  next n#28
    |         |    R---- H1 n#28  prior n#27  next n#23
    |         R---- H1 n#13  prior n#23  next n#17
    R---- H4 n#26  prior n#25  next n#22
        L---- H3 n#21  prior n#30  next n#25
        |    L---- H2 n#29  prior n#17  next n#30
        |    |    R---- H1 n#30  prior n#29  next n#21
        |    R---- H1 n#25  prior n#21  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-459) #1(p1;-459,-117) #9(p5;-117,55) #27(p14;55,84) #28(p5;84,104) #23(p12;104,256)
#13(p7;256,258) #17(p9;258,339) #29(p15;339,339) #30(p9;339,357) #21(p11;357,364) #25(p13;364,472)
#26(p11;472,548) #22(p8;548,696) #8(p2;696,3285) #4(p0;3285,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,466) (41,42) #28(p5,503) (42,40)
#23(p12,539) (40,36) #13(p7,649) (36,30) #17(p9,722) (30,43) #29(p15,747) (43,44) #30(p9,771) (44,39)
#21(p11,795) (39,37) #25(p13,868) (37,38) #26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3)
#4(p0,960) (3,0)
Priority queue:
R----H3 e#24 X=397; n#21
     L----H2 e#21 X=393; n#13
     |    L----H1 e#28 X=392; n#30
     |    R----H1 e#26 X=394; n#28
     R----H2 e#25 X=638; n#9
          L----H1 e#27 X=449; n#17

At x=392 Removing: e#28 n#30 p#(15,9,11) center: (318,356)

At x=392  Invalid: e#24 n#21

At x=392  Adding: e#29, X=393 (321,360) for n#21; prior n#29  next n#25
At x=393 Removing: e#21 n#13 p#(12,7,9) center: (327,258)

At x=393  Invalid: e#27 n#17

At x=393  Adding: e#30, X=431 (350,268) for n#17; prior n#23  next n#29
At x=393 Removing: e#29 n#21 p#(15,11,13) center: (321,360)

At x=394 Removing: e#26 n#28 p#(14,5,12) center: (300,101)
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At x=394  Adding: e#31, X=4644 (2362,1216) for n#23; prior n#27  next n#17
 -> Adding p#16 (396, 406) into n#25

At x=396  Adding: e#32, X=407 (361,375) for n#25; prior n#29  next n#31

BF tree at end of point added:
R---- H4 n#17  prior n#23  next n#29
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#27  next n#17
    |        L---- H1 n#27  prior n#9  next n#23
    R---- H3 n#26  prior n#32  next n#22
        L---- H2 n#25  prior n#29  next n#31
        |    L---- H1 n#29  prior n#17  next n#25
        |    R---- H1 n#31  prior n#25  next n#32
        |        R---- H1 n#32  prior n#31  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-469) #1(p1;-469,-124) #9(p5;-124,28) #27(p14;28,105) #23(p12;105,258) #17(p9;258,312)
#29(p15;312,365) #25(p13;365,406) #31(p16;406,406) #32(p13;406,478) #26(p11;478,556) #22(p8;556,707)
#8(p2;707,3335) #4(p0;3335,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,48) #23(p12,598) (48,46)
#17(p9,682) (46,43) #29(p15,746) (43,47) #25(p13,810) (47,49) #31(p16,832) (49,50) #32(p13,853) (50,38)
#26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H3 e#25 X=638; n#9
     L----H2 e#30 X=431; n#17
     |    L----H1 e#32 X=407; n#25
     R----H1 e#31 X=4644; n#23

 -> Adding p#17 (400, 400) into n#31

At x=400  Adding: e#33, X=405 (362,379) for n#31; prior n#25  next n#33

BF tree at end of point added:
R---- H5 n#17  prior n#23  next n#29
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#27  next n#17
    |        L---- H1 n#27  prior n#9  next n#23
    R---- H4 n#26  prior n#32  next n#22
        L---- H3 n#31  prior n#25  next n#33
        |    L---- H2 n#25  prior n#29  next n#31
        |    |    L---- H1 n#29  prior n#17  next n#25
        |    R---- H2 n#34  prior n#33  next n#32
        |        L---- H1 n#33  prior n#31  next n#34
        |        R---- H1 n#32  prior n#34  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-476) #1(p1;-476,-129) #9(p5;-129,16) #27(p14;16,111) #23(p12;111,260) #17(p9;260,305)
#29(p15;305,370) #25(p13;370,390) #31(p16;390,400) #33(p17;400,400) #34(p16;400,418) #32(p13;418,482)
#26(p11;482,560) #22(p8;560,713) #8(p2;713,3369) #4(p0;3369,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,48) #23(p12,598) (48,46)
#17(p9,682) (46,43) #29(p15,746) (43,47) #25(p13,810) (47,49) #31(p16,832) (49,51) #33(p17,839) (51,52)
#34(p16,846) (52,50) #32(p13,853) (50,38) #26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3)
#4(p0,960) (3,0)
Priority queue:
R----H3 e#25 X=638; n#9
     L----H2 e#32 X=407; n#25
     |    L----H1 e#33 X=405; n#31
     |    R----H1 e#30 X=431; n#17
     R----H1 e#31 X=4644; n#23

At x=405 Removing: e#33 n#31 p#(13,16,17) center: (362,379)
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At x=405  Invalid: e#32 n#25

At x=405  Adding: e#34, X=407 (360,375) for n#25; prior n#29  next n#33
At x=407 Removing: e#34 n#25 p#(15,13,17) center: (360,375)

 -> Adding p#18 (416, 479) into n#32

At x=416  Adding: e#35, X=432 (391,447) for n#32; prior n#34  next n#35

At x=416  Adding: e#36, X=419 (339,500) for n#36; prior n#35  next n#26

BF tree at end of point added:
R---- H5 n#17  prior n#23  next n#29
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#27  next n#17
    |        L---- H1 n#27  prior n#9  next n#23
    R---- H4 n#26  prior n#36  next n#22
        L---- H3 n#33  prior n#29  next n#34
        |    L---- H1 n#29  prior n#17  next n#33
        |    R---- H2 n#32  prior n#34  next n#35
        |        L---- H1 n#34  prior n#33  next n#32
        |        R---- H1 n#35  prior n#32  next n#36
        |            R---- H1 n#36  prior n#35  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-504) #1(p1;-504,-148) #9(p5;-148,-23) #27(p14;-23,125) #23(p12;125,264) #17(p9;264,284)
#29(p15;284,372) #33(p17;372,408) #34(p16;408,435) #32(p13;435,479) #35(p18;479,479) #36(p13;479,497)
#26(p11;497,579) #22(p8;579,740) #8(p2;740,3503) #4(p0;3503,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,48) #23(p12,598) (48,46)
#17(p9,682) (46,43) #29(p15,736) (43,54) #33(p17,791) (54,52) #34(p16,846) (52,50) #32(p13,853) (50,55)
#35(p18,860) (55,56) #36(p13,867) (56,38) #26(p11,875) (38,32) #22(p8,881) (32,22) #8(p2,901) (22,3)
#4(p0,960) (3,0)
Priority queue:
R----H3 e#25 X=638; n#9
     L----H2 e#30 X=431; n#17
     |    L----H1 e#36 X=419; n#36
     |    R----H1 e#35 X=432; n#32
     R----H1 e#31 X=4644; n#23

At x=419 Removing: e#36 n#36 p#(18,13,11) center: (339,500)


At x=419  Adding: e#37, X=556 (231,746) for n#26; prior n#35  next n#22
At x=431 Removing: e#30 n#17 p#(12,9,15) center: (350,268)

At x=431  Invalid: e#31 n#23

At x=431  Adding: e#38, X=660 (491,204) for n#23; prior n#27  next n#29
At x=432 Removing: e#35 n#32 p#(16,13,18) center: (391,447)


At x=432  Adding: e#39, X=496 (442,433) for n#34; prior n#33  next n#35
 -> Adding p#19 (435, 435) into n#34
At x=435  Invalid: e#39 n#34

At x=435  Adding: e#40, X=443 (418,417) for n#34; prior n#33  next n#37

At x=435  Adding: e#41, X=436 (397,445) for n#38; prior n#37  next n#35

BF tree at end of point added:
R---- H5 n#29  prior n#23  next n#33
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#23  prior n#27  next n#29
    |        L---- H1 n#27  prior n#9  next n#23
    R---- H4 n#26  prior n#35  next n#22
        L---- H3 n#34  prior n#33  next n#37
        |    L---- H1 n#33  prior n#29  next n#34
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        |    R---- H2 n#38  prior n#37  next n#35
        |        L---- H1 n#37  prior n#34  next n#38
        |        R---- H1 n#35  prior n#38  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-537) #1(p1;-537,-170) #9(p5;-170,-61) #27(p14;-61,136) #23(p12;136,267) #29(p15;267,368)
#33(p17;368,414) #34(p16;414,435) #37(p19;435,435) #38(p16;435,445) #35(p18;445,542) #26(p11;542,602)
#22(p8;602,771) #8(p2;771,3661) #4(p0;3661,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,48) #23(p12,606) (48,58)
#29(p15,699) (58,54) #33(p17,791) (54,52) #34(p16,818) (52,60) #37(p19,827) (60,61) #38(p16,836)
(61,59) #35(p18,845) (59,57) #26(p11,872) (57,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960)
(3,0)
Priority queue:
R----H3 e#25 X=638; n#9
     L----H2 e#40 X=443; n#34
     |    L----H1 e#41 X=436; n#38
     |    R----H1 e#37 X=556; n#26
     R----H1 e#38 X=660; n#23

At x=436 Removing: e#41 n#38 p#(19,16,18) center: (397,445)

At x=443 Removing: e#40 n#34 p#(17,16,19) center: (418,417)


At x=443  Adding: e#42, X=570 (479,356) for n#33; prior n#29  next n#37
 -> Adding p#20 (446, 28) into n#27

At x=446  Adding: e#43, X=681 (34,-471) for n#27; prior n#9  next n#39

At x=446  Adding: e#44, X=799 (559,241) for n#40; prior n#39  next n#23

BF tree at end of point added:
R---- H4 n#29  prior n#23  next n#33
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#39  prior n#27  next n#40
    |        L---- H1 n#27  prior n#9  next n#39
    |        R---- H2 n#23  prior n#40  next n#29
    |            L---- H1 n#40  prior n#39  next n#23
    R---- H3 n#26  prior n#35  next n#22
        L---- H2 n#37  prior n#33  next n#35
        |    L---- H1 n#33  prior n#29  next n#37
        |    R---- H1 n#35  prior n#37  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-556) #1(p1;-556,-183) #9(p5;-183,-82) #27(p14;-82,28) #39(p20;28,28) #40(p14;28,141)
#23(p12;141,262) #29(p15;262,367) #33(p17;367,414) #37(p19;414,455) #35(p18;455,564) #26(p11;564,615)
#22(p8;615,789) #8(p2;789,3753) #4(p0;3753,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,64) #39(p20,544) (64,65)
#40(p14,575) (65,48) #23(p12,606) (48,58) #29(p15,699) (58,54) #33(p17,750) (54,63) #37(p19,802)
(63,62) #35(p18,854) (62,57) #26(p11,872) (57,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960)
(3,0)
Priority queue:
R----H3 e#25 X=638; n#9
     L----H2 e#37 X=556; n#26
     |    R----H1 e#42 X=570; n#33
     R----H2 e#43 X=681; n#27
          L----H1 e#38 X=660; n#23
          R----H1 e#44 X=799; n#40

 -> Adding p#21 (463, 418) into n#37

At x=463  Adding: e#45, X=467 (434,401) for n#37; prior n#33  next n#41

At x=463  Adding: e#46, X=549 (482,482) for n#42; prior n#41  next n#35

BF tree at end of point added:
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R---- H5 n#29  prior n#23  next n#33
    L---- H3 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#39  prior n#27  next n#40
    |        L---- H1 n#27  prior n#9  next n#39
    |        R---- H2 n#23  prior n#40  next n#29
    |            L---- H1 n#40  prior n#39  next n#23
    R---- H4 n#26  prior n#35  next n#22
        L---- H3 n#37  prior n#33  next n#41
        |    L---- H1 n#33  prior n#29  next n#37
        |    R---- H2 n#42  prior n#41  next n#35
        |        L---- H1 n#41  prior n#37  next n#42
        |        R---- H1 n#35  prior n#42  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-585) #1(p1;-585,-202) #9(p5;-202,-113) #27(p14;-113,-29) #39(p20;-29,60) #40(p14;60,147)
#23(p12;147,255) #29(p15;255,365) #33(p17;365,404) #37(p19;404,418) #41(p21;418,418) #42(p19;418,462)
#35(p18;462,595) #26(p11;595,635) #22(p8;635,817) #8(p2;817,3895) #4(p0;3895,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,64) #39(p20,544) (64,65)
#40(p14,575) (65,48) #23(p12,606) (48,58) #29(p15,699) (58,54) #33(p17,750) (54,63) #37(p19,802)
(63,66) #41(p21,819) (66,67) #42(p19,837) (67,62) #35(p18,854) (62,57) #26(p11,872) (57,32) #22(p8,881)
(32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H4 e#25 X=638; n#9
     L----H3 e#37 X=556; n#26
     |    L----H2 e#45 X=467; n#37
     |    |    R----H1 e#46 X=549; n#42
     |    R----H1 e#42 X=570; n#33
     R----H2 e#43 X=681; n#27
          L----H1 e#38 X=660; n#23
          R----H1 e#44 X=799; n#40

At x=467 Removing: e#45 n#37 p#(17,19,21) center: (434,401)

At x=467  Invalid: e#42 n#33

At x=467  Adding: e#47, X=505 (445,361) for n#33; prior n#29  next n#41
 -> Adding p#22 (482, 136) into n#40
At x=482  Invalid: e#44 n#40

At x=482  Adding: e#48, X=506 (446,88) for n#40; prior n#39  next n#43

At x=482  Adding: e#49, X=484 (399,154) for n#44; prior n#43  next n#23

BF tree at end of point added:
R---- H5 n#29  prior n#23  next n#33
    L---- H4 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H3 n#39  prior n#27  next n#40
    |        L---- H1 n#27  prior n#9  next n#39
    |        R---- H2 n#43  prior n#40  next n#44
    |            L---- H1 n#40  prior n#39  next n#43
    |            R---- H2 n#23  prior n#44  next n#29
    |                L---- H1 n#44  prior n#43  next n#23
    R---- H4 n#26  prior n#35  next n#22
        L---- H3 n#41  prior n#33  next n#42
        |    L---- H1 n#33  prior n#29  next n#41
        |    R---- H2 n#42  prior n#41  next n#35
        |        R---- H1 n#35  prior n#42  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-618) #1(p1;-618,-224) #9(p5;-224,-146) #27(p14;-146,-70) #39(p20;-70,73) #40(p14;73,136)
#43(p22;136,136) #44(p14;136,154) #23(p12;154,249) #29(p15;249,363) #33(p17;363,382) #41(p21;382,441)
#42(p19;441,467) #35(p18;467,627) #26(p11;627,658) #22(p8;658,847) #8(p2;847,4054) #4(p0;4054,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,64) #39(p20,544) (64,65)
#40(p14,575) (65,69) #43(p22,585) (69,70) #44(p14,596) (70,48) #23(p12,606) (48,58) #29(p15,699)
```

```
(58,54) #33(p17,745) (54,68) #41(p21,791) (68,67) #42(p19,837) (67,62) #35(p18,854) (62,57)
#26(p11,872) (57,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H4 e#25 X=638; n#9
     L----H3 e#46 X=549; n#42
     |    L----H2 e#47 X=505; n#33
     |    |    L----H1 e#49 X=484; n#44
     |    |    R----H1 e#48 X=506; n#40
     |    R----H1 e#37 X=556; n#26
     R----H2 e#43 X=681; n#27
          L----H1 e#38 X=660; n#23

At x=484 Removing: e#49 n#44 p#(22,14,12) center: (399,154)

At x=484  Invalid: e#38 n#23

At x=484  Adding: e#50, X=539 (427,233) for n#23; prior n#43  next n#29
 -> Adding p#23 (489, 237) into n#23
At x=489  Invalid: e#50 n#23

At x=489  Adding: e#51, X=501 (412,192) for n#23; prior n#43  next n#45

At x=489  Adding: e#52, X=490 (397,247) for n#46; prior n#45  next n#29

BF tree at end of point added:
R---- H5 n#29  prior n#46  next n#33
    L---- H4 n#9  prior n#1  next n#27
    |    L---- H2 n#1  prior n#0  next n#9
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H3 n#43  prior n#40  next n#23
    |        L---- H2 n#39  prior n#27  next n#40
    |        |    L---- H1 n#27  prior n#9  next n#39
    |        |    R---- H1 n#40  prior n#39  next n#43
    |        R---- H2 n#23  prior n#43  next n#45
    |            R---- H1 n#45  prior n#23  next n#46
    |                R---- H1 n#46  prior n#45  next n#29
    R---- H4 n#26  prior n#35  next n#22
        L---- H3 n#41  prior n#33  next n#42
        |    L---- H1 n#33  prior n#29  next n#41
        |    R---- H2 n#42  prior n#41  next n#35
        |        R---- H1 n#35  prior n#42  next n#26
        R---- H2 n#8  prior n#22  next n#4
            L---- H1 n#22  prior n#26  next n#8
            R---- H1 n#4  prior n#8  nil
Beach front (nodeID, PointID, intersections):
#0(p0;nil,-630) #1(p1;-630,-232) #9(p5;-232,-158) #27(p14;-158,-85) #39(p20;-85,78) #40(p14;78,109)
#43(p22;109,170) #23(p12;170,237) #45(p23;237,237) #46(p12;237,247) #29(p15;247,363) #33(p17;363,375)
#41(p21;375,446) #42(p19;446,468) #35(p18;468,638) #26(p11;638,666) #22(p8;666,858) #8(p2;858,4113)
#4(p0;4113,nil)
Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,320) (0,11) #9(p5,429) (11,41) #27(p14,514) (41,64) #39(p20,544) (64,65)
#40(p14,575) (65,69) #43(p22,616) (69,71) #23(p12,657) (71,72) #45(p23,671) (72,73) #46(p12,685)
(73,58) #29(p15,699) (58,54) #33(p17,745) (54,68) #41(p21,791) (68,67) #42(p19,837) (67,62)
#35(p18,854) (62,57) #26(p11,872) (57,32) #22(p8,881) (32,22) #8(p2,901) (22,3) #4(p0,960) (3,0)
Priority queue:
R----H4 e#46 X=549; n#42
     L----H3 e#47 X=505; n#33
     |    L----H2 e#51 X=501; n#23
     |    |    L----H1 e#52 X=490; n#46
     |    R----H1 e#48 X=506; n#40
     R----H2 e#25 X=638; n#9
          L----H1 e#37 X=556; n#26
          R----H1 e#43 X=681; n#27

Processing remaining circle events
At x=490 Removing: e#52 n#46 p#(23,12,15) center: (397,247)


At x=490  Adding: e#53, X=620 (505,351) for n#29; prior n#45  next n#33
Priority queue
R----H4 e#46 X=549; n#42
     L----H2 e#47 X=505; n#33
     |    L----H1 e#51 X=501; n#23
     |    R----H1 e#48 X=506; n#40
```

```
     R----H3 e#25 X=638; n#9
          L----H2 e#37 X=556; n#26
          |    R----H1 e#53 X=620; n#29
          R----H1 e#43 X=681; n#27

At x=501 Removing: e#51 n#23 p#(22,12,23) center: (412,192)

Priority queue
R----H4 e#46 X=549; n#42
     L----H2 e#47 X=505; n#33
     |    R----H1 e#48 X=506; n#40
     R----H3 e#25 X=638; n#9
          L----H2 e#37 X=556; n#26
          |    R----H1 e#53 X=620; n#29
          R----H1 e#43 X=681; n#27

At x=505 Removing: e#47 n#33 p#(15,17,21) center: (445,361)

At x=505  Invalid: e#53 n#29

At x=505  Adding: e#54, X=572 (481,328) for n#29; prior n#45  next n#41
Priority queue
R----H3 e#37 X=556; n#26
     L----H2 e#46 X=549; n#42
     |    L----H1 e#48 X=506; n#40
     R----H2 e#25 X=638; n#9
          L----H1 e#54 X=572; n#29
          R----H1 e#43 X=681; n#27

At x=506 Removing: e#48 n#40 p#(20,14,22) center: (446,88)

Priority queue
R----H3 e#37 X=556; n#26
     L----H1 e#46 X=549; n#42
     R----H2 e#25 X=638; n#9
          L----H1 e#54 X=572; n#29
          R----H1 e#43 X=681; n#27

At x=549 Removing: e#46 n#42 p#(21,19,18) center: (482,482)

Priority queue
R----H3 e#25 X=638; n#9
     L----H2 e#37 X=556; n#26
     |    R----H1 e#54 X=572; n#29
     R----H1 e#43 X=681; n#27

At x=556 Removing: e#37 n#26 p#(18,11,8) center: (231,746)

Priority queue
R----H2 e#25 X=638; n#9
     L----H1 e#54 X=572; n#29
     R----H1 e#43 X=681; n#27

At x=572 Removing: e#54 n#29 p#(23,15,21) center: (481,328)

Priority queue
R----H2 e#25 X=638; n#9
     R----H1 e#43 X=681; n#27

At x=638 Removing: e#25 n#9 p#(1,5,14) center: (66,-402)

At x=638  Invalid: e#43 n#27

At x=638  Adding: e#55, X=667 (55,-444) for n#27; prior n#1  next n#39
Priority queue
R----H1 e#55 X=667; n#27

At x=667 Removing: e#55 n#27 p#(1,14,20) center: (55,-444)

Empty queue
```

BF at end

```
R---- H4 n#41  prior n#45  next n#35
    L---- H3 n#39  prior n#1  next n#43
    |    L---- H2 n#1  prior n#0  next n#39
    |    |    L---- H1 n#0  -  nil   next n#1
    |    R---- H2 n#43  prior n#39  next n#45
    |        R---- H1 n#45  prior n#43  next n#41
    R---- H3 n#22  prior n#35  next n#8
        L---- H1 n#35  prior n#41  next n#22
        R---- H2 n#8  prior n#22  next n#4
            R---- H1 n#4  prior n#8  nil
```

Beach front (nodeID, PointID, intersections):
#0(p0;nil,-939) #1(p1;-939,-444) #39(p20;-444,52) #43(p22;52,181) #45(p23;181,338) #41(p21;338,524)
#35(p18;524,913) #22(p8;913,1140) #8(p2;1140,5603) #4(p0;5603,nil)

Beach front (nodeID, index, s0/s1:
#0(p0,0) (0,0) #1(p1,205) (0,82) #39(p20,411) (82,77) #43(p22,617) (77,75) #45(p23,683) (75,80)
#41(p21,750) (80,78) #35(p18,816) (78,79) #22(p8,858) (79,22) #8(p2,901) (22,3) #4(p0,960) (3,0)

Segments:
0 (19,169),(0,137) 1 (19,169),(63,245)
2 (63,245),(0,261) 3 (0,0),(0,0)
4 (63,245),(96,244) 5 (98,239),(129,171)
6 (98,239),(96,244) 7 (96,244),(126,296)
8 (128,312),(126,296) 9 (128,312),(136,425)
10 (126,296),(197,277) 11 (126,149),(110,0)
12 (126,149),(129,171) 13 (129,171),(229,201)
14 (206,260),(228,218) 15 (206,260),(197,277)
16 (197,277),(240,293) 17 (241,240),(228,218)
18 (241,240),(259,270) 19 (228,218),(229,201)
20 (137,424),(257,360) 21 (137,424),(136,425)
22 (136,425),(103,500) 23 (241,296),(240,293)
24 (241,296),(257,360) 25 (240,293),(259,270)
26 (229,201),(232,199) 27 (235,196),(295,112)
28 (235,196),(232,199) 29 (232,199),(308,233)
30 (259,270),(327,258) 31 (286,429),(298,360)
32 (286,429),(274,500) 33 (303,192),(295,112)
34 (303,192),(308,233) 35 (257,360),(298,360)
36 (308,233),(327,258) 37 (329,422),(321,360)
38 (329,422),(339,500) 39 (298,360),(318,356)
40 (295,112),(300,101) 41 (286,70),(253,0)
42 (286,70),(300,101) 43 (324,339),(350,268)
44 (324,339),(318,356) 45 (318,356),(321,360)
46 (327,258),(350,268) 47 (321,360),(360,375)
48 (300,101),(399,154) 49 (374,406),(362,379)
50 (374,406),(391,447) 51 (394,400),(362,379)
52 (394,400),(418,417) 53 (362,379),(360,375)
54 (360,375),(445,361) 55 (359,479),(391,447)
56 (359,479),(339,500) 57 (339,500),(338,500)
58 (350,268),(397,247) 59 (391,447),(397,445)
60 (405,435),(418,417) 61 (405,435),(397,445)
62 (397,445),(482,482) 63 (418,417),(434,401)
64 (402,28),(381,0) 65 (402,28),(446,88)
66 (444,418),(434,401) 67 (444,418),(482,482)
68 (434,401),(445,361) 69 (412,136),(446,88)
70 (412,136),(399,154) 71 (399,154),(412,192)
72 (400,237),(412,192) 73 (400,237),(397,247)
74 (397,247),(481,328) 75 (412,192),(500,185)
76 (445,361),(481,328) 77 (446,88),(500,70)
78 (482,482),(500,495) 79 (0,0),(0,0)
80 (481,328),(500,331) 81 (0,0),(0,0)
82 (0,0),(0,0)

```
Approx elapsed time: 1 ms
Segments: 83
Triangles: 37
Convex hull: 9 points
Parabola intersections: 716
Circle tests: 117
BF insert comparisons: 70
Priority queue records created: 56
Max BF count: 19
Max BF depth: 5
Max PQ count: 8
Max PQ depth: 4

Andrew's monotone chain convex hull: (Point IDs)
0 1 20 22 23 21 18 8 2

Voronoi hull: (Point IDs)
0 1 20 22 23 21 18 8 2
```