

BLACK BOX™



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RULES AND SOLITAIRE GAMES

For 1 or 2 Players/Ages 10 to Adult

THE ULTIMATE GAME OF HIDE AND SEEK

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EQUIPMENT

In the box you'll find 5 balls, 48 markers, 1 pattern/score card and a crayon. Not included, but needed to erase the pattern card, is a tissue or piece of soft cloth.

A STRATEGY GAME

This is a strategy game for either 1 or 2 players. Whether you play alone or against an opponent, the game play is the same. First let's look at the 2-player version; this version presents the basic information that's also needed for solitaire play.

HIDE AND SEEK

This is a game of Hide and Seek. One player hides something; the other player looks for it. The hiding is done on the pattern card; the seeking is done in the box.

Place the pattern card next to the box. You'll see that both are exactly the same design. Both show numbers from 1 to 32 on the outside.

Decide between you who will hide and who will seek.

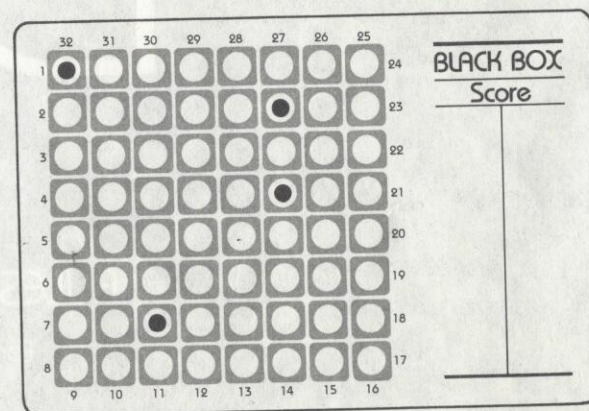
Hider. Without showing your opponent what you're doing, make four marks on the pattern card. You may make these marks in any four of the squares. Figure 1 shows an example.

Seeker. Your task is to find each hidden location inside the box. You try to do this in as few tries as possible.

During a real game you would not see the pattern card until you finished your search. Now, however, take a look at the card. Place it next to the box. Then place a ball into the box to *match* each mark on the card.

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(1) You've just done the hiding. Each mark represents a hidden location inside the box itself.

This is the object of the game: to find each hidden location and mark it with a ball. After you've done this, you and your opponent then change sides: you do the hiding; your opponent does the seeking. The one to find the other's hidden locations in the fewer tries is the winner.

How do you find the hidden locations? This is where the fun and the challenge come in. In seeking the hidden locations, you're like a detective looking for clues. Your tool: imaginary rays.

THE RAYS

By sending rays into the box you — the *seeker* — gain clues about the hidden locations.

To send a ray into the box, simply announce a number from 1 to 32. Once it enters the box, the ray does one of three things:

- it stays inside the box;
- it comes out exactly where it entered; or
- it comes out somewhere else.

Your opponent is able to observe the ray's movement with the pattern card and tells you exactly what happens to the ray.

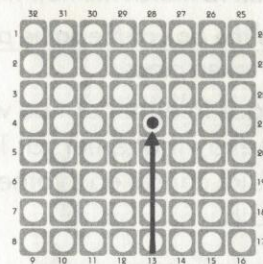
Here's what the rays look like and what kinds of clues they offer.

THE MOVEMENT OF RAYS/ HIT, DETOUR, REFLECTION AND MISS

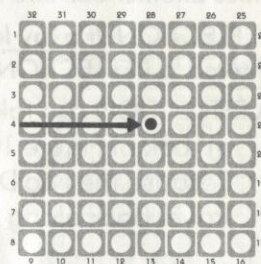
Place a ball into the box to match the hidden location in Figure 2.

HIT: *If a ray travels directly into a hidden location, it does not leave the box.*

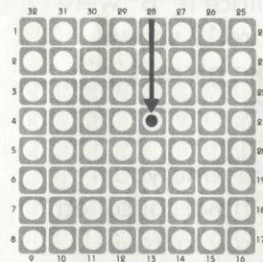
Figures 2, 3, 4 and 5 show one HIT each. Trace each patch in the box with your finger.



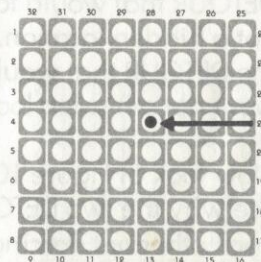
(2) Seeker says 13.
Hider says HIT.



(3) Seeker says 4.
Hider says HIT.



(4) Seeker says 28.
Hider says HIT.



(5) Seeker says 21.
Hider says HIT.

DETOUR: A ray cannot travel past a hidden location that lies directly next to its path. Instead, the ray detours 90° away from the nearest corner of the hidden location's square. If the ray approaches from the left, it detours to the left; if it approaches from the right, it detours to the right.

Figures 6, 7, 8 and 9 show one DETOUR each. Trace each path in the box with your finger. While you're doing this, notice that a DETOUR takes place at the nearest corner of a hidden location's square.

Place another ball into the box to match the new hidden location in Figure 10.

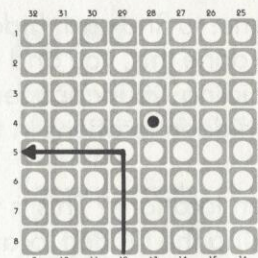
REFLECTION: If a ray leaves the box at the same point from which it entered, a REFLECTION has taken place.

A REFLECTION can take place in either of two ways:

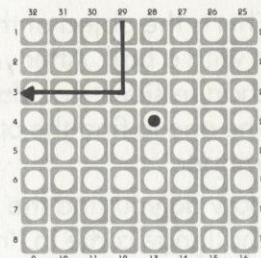
- a) Look at Figure 10. The ray that enters at 14 also exits at 14. Why? Because the two DETOURS cancel each other out, forcing the ray to travel back along its path.

To better understand this effect, look at Figures 11 and 12. Figure 11 shows the DETOUR that would take place if "B" were not a hidden location. Figure 12 shows the DETOUR that would take place if "A" were not a hidden location.

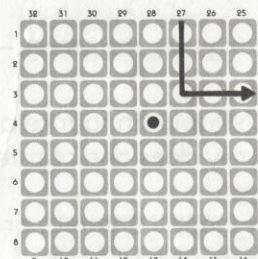
Now look at Figure 10 again and you'll see why the two DETOURS have cancelled each other out, forcing the ray to travel backwards as a REFLECTION. Study this effect using the balls in the box.



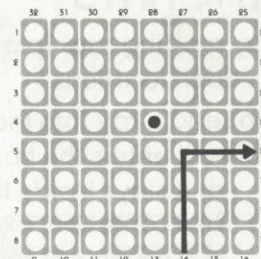
(6) Seeker says 12.
Hider says 5.



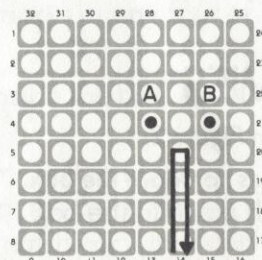
(7) Seeker says 29.
Hider says 3.



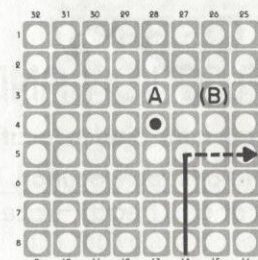
(8) Seeker says 27.
Hider says 22.



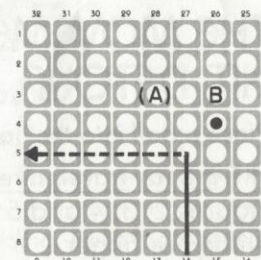
(9) Seeker says 14.
Hider says 20.



(10) Seeker says 14.
Hider says REFLECTION.



(11)



(12)

Place a ball into the box to match the hidden location in Figure 13.

b) The ray that tries to enter the box at 14 cannot travel past the nearest corner of the hidden location. As a result, it is forced to remain at its starting point. This is a REFLECTION, too.

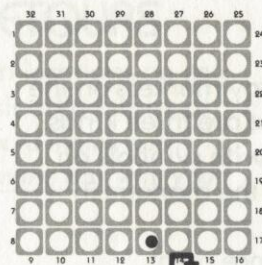
For Figures 14-17 place balls into the box to match each illustration's hidden locations.

Figures 14 and 16 show one REFLECTION each. Figures 15 and 17 show one DETOUR each. Study the differences carefully by tracing each path in the box with your finger.

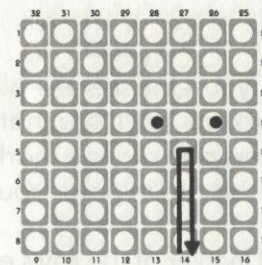
Place a ball into the box to match the hidden location in Figure 18.

MISS: If a ray does not encounter a hidden location, it travels through the box in a straight line.

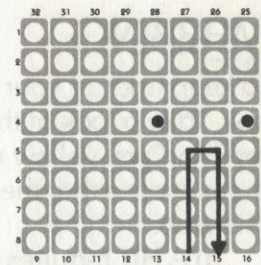
Figures 18, 19, 20 and 21 show one MISS each. Trace each ray's path in the box with your finger. While you're doing this, notice that there is one clear path between each ray and the hidden location.



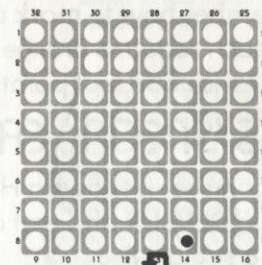
(13) Seeker says 14.
Hider says REFLECTION.



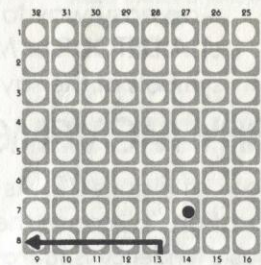
(14) REFLECTION
Seeker says 14.
Hider says REFLECTION.



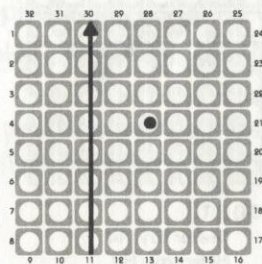
(15) DETOUR
Seeker says 14.
Hider says 15.



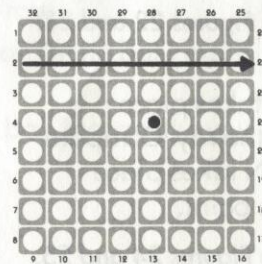
(16) REFLECTION
Seeker says 13.
Hider says REFLECTION.



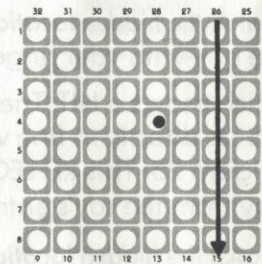
(17) DETOUR
Seeker says 13.
Hider says 8.



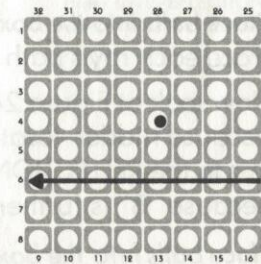
(18) Seeker says 11.
Hider says 30.



(19) Seeker says 2.
Hider says 23.



(20) Seeker says 26.
Hider says 15.



(21) Seeker says 19.
Hider says 6.

MARKING

To keep track of your rays, you — the seeker — place ray markers on the box. Take a look at the markers. You'll see that there are three kinds: red markers, yellow markers and orange markers with symbols on them. Notice that the symbols are in pairs. You use the markers in this way:

- a) A HIT requires a **red marker** at the ray's entrance point.
- b) A REFLECTION requires a **yellow marker** at the ray's entrance/exit point. (A yellow marker is like a mirror image of a yellow ball — an easy way to remember how to mark a REFLECTION.)
- c) A DETOUR or MISS each requires **orange markers with matching symbols** at the ray's entrance and exit points.

RAY MOVEMENTS/SPECIAL EFFECTS

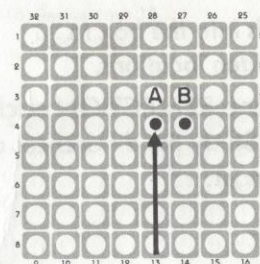
Look at Figure 22. As you can see, it shows a HIT. Why didn't hidden location "B" cause the ray to DETOUR and exit at 5? Because a ray's **basic tendency is to travel in a straight line**.

Compare this effect with that in Figure 23. This ray is forced to DETOUR because hidden location "B" is closer to the ray's entrance point; the ray cannot travel past "B's" nearest corner.

Place balls into the box to match the hidden locations in Figures 22 and 23. Trace each ray's path in the box with your finger.

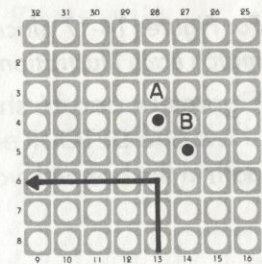
Now look at Figure 24, which shows a HIT. The HIT takes place because hidden location "B" is directly in line with the ray. Compare this to the REFLECTION in Figure 25. This REFLECTION takes place because "B" is further away from the ray's entrance point.

Place balls into the box to match the hidden locations in Figures 24 and 25. Trace each ray's path in the box with your finger.



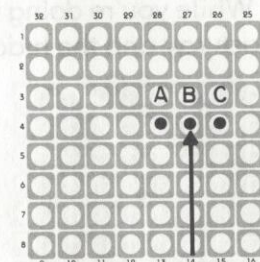
(22) HIT

Seeker says 13.
Hider says HIT.
Seeker places a red marker at 13.



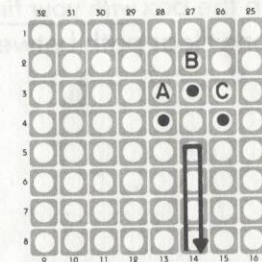
(23) DETOUR

Seeker says 13.
Hider says 6.
Seeker places matching symbols at 13 and 6.



(24) HIT

Seeker says 14.
Hider says HIT.
Seeker places a red marker at 14.



(25) REFLECTION

Seeker says 14.
Hider says REFLECTION.
Seeker places a yellow marker at 14.

RAY MOVEMENTS/MULTIPLE DETOURS

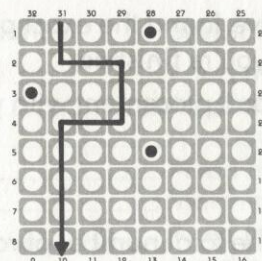
Sometimes a ray encounters a number of hidden locations on its path. When this happens, the results can be misleading. Look at Figures 26, 27, 28 and 29. Place balls into the box to match each illustration's hidden locations. Trace each ray's path in the box with your finger.

PLAYING/AN OUTLINE

You're about to play a practice game. Before you do, look over this outline. It should give you a complete understanding of game play.

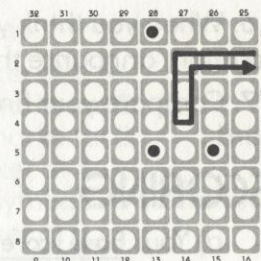
1. You and your opponent decide who will hide and who will seek.
2. The two of you then decide whether to play with 4 hidden locations or with 5. A game with 5 hidden locations is usually more difficult.
3. The hider marks the hidden locations on the pattern card.
4. The seeker then looks for the hidden locations by sending rays into the box:
 - a) By using the pattern card, your opponent—the hider—tells you the result of each ray's travel.
 - b) You place appropriate marker(s) for each ray.
5. When you—the seeker—find a hidden location in the box, mark that point with a ball.

If further clues tell you that you've placed a ball incorrectly, you may move that ball as often as you want.



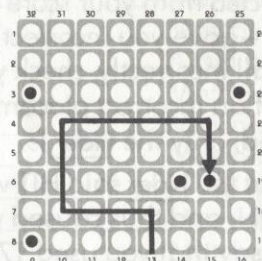
(26) DETOUR

Seeker says 31.
Hider says 10.
Seeker places matching symbols at 31 and 10.



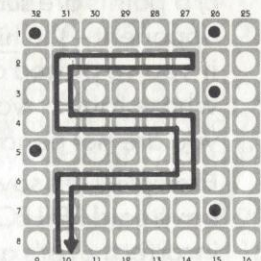
(27) REFLECTION

Seeker says 23.
Hider says REFLECTION.
Seeker places a yellow marker at 23.



(28) HIT

Seeker says 13.
Hider says HIT.
Seeker places a red marker at 13.



(29) REFLECTION

Seeker says 10.
Hider says REFLECTION.
Seeker places a yellow marker at 10.

6. When you think you've found the exact position of each hidden location, announce that you're finished.

7. Compare your final ball placement with your opponent's pattern card.

SCORING

a) Your **base score** is the total number of ray markers that you've used. Each marker—whether red, yellow or orange—counts as 1 point.

b) 5 points are **added** to your score for each incorrectly placed ball.

c) 5 points are **subtracted** from your score for each time that your opponent—the **hider**—gave you incorrect information. Therefore, if you've placed a ball incorrectly, check your ray markers to see whose fault it was. If an incorrect placement was not your fault, you are not penalized; only the **hider** is.

Example: Let's say that the **hider** said HIT when he or she should have said REFLECTION, and thus caused you to place a ball incorrectly. Let's also say that you used 17 ray markers during the game. In this case your final score would be 17 minus 5, or 12.

WINNING

You and your opponent then reverse roles: the **hider** becomes the **seeker** and the **seeker** becomes the **hider**.

The one to find the other's hidden locations with the lower score is the winner.

A PRACTICE GAME

To help confirm what you've learned, it's important that you play this game.

First decide who will hide and who will seek. The **hider** should then pick up this booklet and read the next few lines orally.

Hider: In secret, mark the pattern card as shown in Figure 1, page 2.

Seeker: Look for the hidden locations in as few tries as possible.

Hider: You may, if it's necessary, consult the following list. It shows each ray's entrance point, travel result and proper marker(s).

Either Player: For information on basic ray patterns and markers, you may consult the illustrations on the booklet's back cover.

Seeker: To start playing, send a ray into the box from any numbered location.

(If you're playing alone, you play the roles of **hider** and **seeker** at the same time. Therefore, do not look at Figure 1 until you've made your final ball placement. To start playing, send a ray into the box from any numbered location. Consult the middle column to learn each ray's travel result. Consult the right-hand column if you have any questions about ray markers. Instructions for Solitaire Play follow this Practice Game.)

Seeker Says	Hider Responds	Seeker Places
1	Hit	A red marker at 1.
2	Reflection	A yellow marker at 2.
3	Reflection	A yellow marker at 3.
4	Hit	A red marker at 4.
5	13	Matching symbols at 5 and 13.
6	Hit	A red marker at 6.
7	Hit	A red marker at 7.
8	10	Matching symbols at 8 and 10.
9	Hit	A red marker at 9.
10	8	Matching symbols at 10 and 8.
11	Hit	A red marker at 11.
12	17	Matching symbols at 12 and 17.
13	5	Matching symbols at 13 and 5.
14	Hit	A red marker at 14.
15	20	Matching symbols at 15 and 20.
16	25	Matching symbols at 16 and 25.
17	12	Matching symbols at 17 and 12.
18	Hit	A red marker at 18.
19	29	Matching symbols at 19 and 29.
20	15	Matching symbols at 20 and 15.
21	Hit	A red marker at 21.
22	Reflection	A yellow marker at 22.
23	Hit	A red marker at 23.
24	26	Matching symbols at 24 and 26.
25	16	Matching symbols at 25 and 16.
26	24	Matching symbols at 26 and 24.
27	Hit	A red marker at 27.
28	Hit	A red marker at 28.
29	19	Matching symbols at 29 and 19.
30	Hit	A red marker at 30.
31	Reflection	A yellow marker at 31.
32	Hit	A red marker at 32.

SOLITAIRE PLAY

On the following pages are 80 games for single-person play. Each of these games has been developed, tested and refined with the aid of a computer. The pages are divided into two sections: **Look-Up Tables** and **Game Solutions**.

To play:

1. Choose one of the 80 numbered games. Games 1-70 require you to look for 4 hidden locations; the final 10 games present 5 hidden locations each.
2. Select a numbered location for a ray's entrance and turn to the page in the **Look-Up Tables** that shows this number on the top.
3. Look down the page for your game's number. Next to this number you'll see the result of the ray's movement.
4. Place your ray marker(s).
5. Continue to send out rays, and to place markers and balls, until you're satisfied that you've found all of the hidden locations.
6. Check the results of your final ball placements. To do this, find your game's number in the **Game Solutions** section.

In this section you can also check your score. Next to a game's diagram you'll see a NORM reference. The NORM represents the number of ray markers which, as determined by computer, the average player should use to find the hidden locations.

LOOK-UP TABLES

1. RAY ENTERS AT 1

Game	Result	Game	Result
1.....	24	41.....	29
2.....	30	42.....	24
3.....	31	43.....	24
4.....	24	44.....	HIT
5.....	24	45.....	27
6.....	27	46.....	29
7.....	27	47.....	27
8.....	24	48.....	24
9.....	32	49.....	HIT
10.....	HIT	50.....	24
11.....	HIT	51.....	31
12.....	28	52.....	24
13.....	24	53.....	24
14.....	24	54.....	HIT
15.....	24	55.....	29
16.....	HIT	56.....	HIT
17.....	24	57.....	HIT
18.....	HIT	58.....	HIT
19.....	HIT	59.....	HIT
20.....	HIT	60.....	24
21.....	24	61.....	HIT
22.....	HIT	62.....	32
23.....	HIT	63.....	30
24.....	HIT	64.....	24
25.....	32	65.....	24
26.....	31	66.....	24
27.....	HIT	67.....	27
28.....	26	68.....	HIT
29.....	24	69.....	24
30.....	26	70.....	HIT
31.....	30	71.....	30
32.....	24	72.....	HIT
33.....	HIT	73.....	31
34.....	27	74.....	24
35.....	HIT	75.....	HIT
36.....	HIT	76.....	HIT
37.....	HIT	77.....	24
38.....	24	78.....	HIT
39.....	28	79.....	27
40.....	24	80.....	HIT

2. RAY ENTERS AT 2

Game	Result	Game	Result
1.....	31	41.....	HIT
2.....	HIT	42.....	23
3.....	HIT	43 REFLECTION	
4.....	30	44.....	HIT
5.....	31	45.....	HIT
6.....	HIT	46.....	HIT
7.....	31	47.....	HIT
8.....	23	48.....	31
9 REFLECTION		49.....	9
10 REFLECTION		50.....	29
11 REFLECTION		51.....	HIT
12.....	HIT	52.....	23
13.....	30	53.....	27
14.....	23	54 REFLECTION	
15.....	23	55.....	HIT
16.....	HIT	56.....	14
17.....	23	57 REFLECTION	
18 REFLECTION		58 REFLECTION	
19.....	10	59.....	32
20 REFLECTION		60.....	23
21.....	31	61.....	HIT
22.....	23	62.....	HIT
23 REFLECTION		63.....	HIT
24.....	10	64.....	23
25.....	HIT	65.....	27
26.....	HIT	66.....	23
27.....	3	67.....	29
28.....	HIT	68.....	HIT
29.....	23	69.....	23
30.....	HIT	70 REFLECTION	
31.....	HIT	71.....	HIT
32.....	23	72.....	HIT
33 REFLECTION		73.....	HIT
34.....	HIT	74.....	23
35.....	HIT	75.....	HIT
36.....	HIT	76.....	19
37 REFLECTION		77.....	30
38.....	23	78 REFLECTION	
39.....	HIT	79.....	HIT
40.....	23	80.....	4

3. RAY ENTERS AT 3

Game	Result	Game	Result
1.....	HIT	41.....	31
2.....	12	42.....	26
3.....	HIT	43.....	HIT
4.....	HIT	44.....	13
5.....	HIT	45.....	HIT
6.....	5	46.....	32
7.....	HIT	47.....	HIT
8.....	22	48.....	HIT
9.....	HIT	49 REFLECTION	
10.....	HIT	50 REFLECTION	
11.....	HIT	51.....	12
12.....	21	52.....	30
13.....	HIT	53.....	HIT
14.....	32	54.....	HIT
15.....	22	55.....	6
16.....	HIT	56.....	22
17.....	22	57.....	22
18.....	22	58.....	HIT
19.....	11	59.....	HIT
20.....	22	60.....	22
21.....	HIT	61.....	22
22.....	22	62.....	HIT
23.....	22	63.....	HIT
24.....	HIT	64.....	28
25.....	6	65.....	30
26.....	10	66.....	31
27.....	2	67.....	HIT
28.....	31	68.....	22
29.....	22	69.....	22
30.....	5	70.....	HIT
31.....	11	71.....	27
32.....	22	72 REFLECTION	
33.....	HIT	73.....	HIT
34.....	28	74.....	27
35 REFLECTION		75.....	HIT
36.....	28	76.....	22
37.....	10	77.....	31
38.....	22	78.....	HIT
39.....	13	79.....	31
40.....	22	80.....	22

4. RAY ENTERS AT 4

Game	Result	Game	Result
1.....	5	41.....	HIT
2.....	HIT	42.....	27
3.....	HIT	43 REFLECTION	
4 REFLECTION		44.....	21
5.....	HIT	45.....	HIT
6.....	21	46.....	HIT
7.....	10	47.....	30
8.....	21	48.....	10
9 REFLECTION		49.....	HIT
10.....	HIT	50.....	HIT
11 REFLECTION		51.....	21
12.....	30	52.....	HIT
13.....	11	53.....	31
14.....	HIT	54 REFLECTION	
15 REFLECTION		55.....	HIT
16.....	HIT	56.....	21
17.....	28	57.....	21
18.....	21	58.....	9
19.....	21	59.....	9
20.....	21	60.....	21
21.....	10	61.....	21
22.....	21	62.....	21
23.....	21	63.....	HIT
24.....	11	64.....	HIT
25.....	HIT	65.....	HIT
26.....	HIT	66.....	HIT
27.....	HIT	67.....	30
28.....	HIT	68.....	21
29 REFLECTION		69.....	29
30.....	21	70.....	21
31 REFLECTION		71.....	HIT
32 REFLECTION		72.....	HIT
33.....	10	73.....	10
34.....	HIT	74.....	HIT
35.....	HIT	75 REFLECTION	
36.....	HIT	76.....	21
37.....	12	77.....	32
38.....	21	78.....	HIT
39.....	HIT	79.....	HIT
40 REFLECTION		80.....	2

5. RAY ENTERS AT 5

Game	Result	Game	Result
1.....	4	41.....	10
2.....	HIT	42.....	HIT
3.....	32	43.....	21
4.....	HIT	44.....	20
5.....	32	45.....	20
6.....	3	46.....	9
7.....	6	47.....	HIT
8.....	32	48.....	11
9.....	20	49.....	11
10.....	20	50 REFLECTION	
11.....	HIT	51.....	20
12.....	HIT	52.....	HIT
13.....	26	53.....	HIT
14 REFLECTION		54.....	14
15.....	HIT	55.....	19
16.....	20	56.....	20
17.....	30	57.....	20
18.....	23	58.....	HIT
19.....	20	59.....	HIT
20.....	20	60.....	27
21.....	20	61.....	20
22.....	32	62.....	20
23.....	28	63.....	18
24.....	HIT	64.....	13
25.....	HIT	65.....	11
26.....	HIT	66.....	20
27.....	11	67.....	20
28.....	7	68.....	28
29.....	HIT	69.....	HIT
30.....	3	70.....	20
31.....	HIT	71.....	32
32.....	HIT	72 REFLECTION	
33.....	20	73.....	20
34.....	6	74 REFLECTION	
35 REFLECTION		75.....	HIT
36.....	13	76.....	20
37.....	21	77.....	HIT
38.....	20	78 REFLECTION	
39.....	32	79.....	10
40.....	HIT	80.....	HIT

6. RAY ENTERS AT 6

Game	Result	Game	Result
1.....	HIT	41.....	HIT
2.....	32	42.....	29
3.....	HIT	43.....	HIT
4.....	11	44.....	19
5.....	HIT	45.....	28
6.....	31	46.....	14
7.....	5	47.....	11
8.....	HIT	48.....	12
9.....	19	49.....	19
10.....	19	50.....	30
11 REFLECTION		51.....	19
12.....	31	52.....	11
13.....	HIT	53.....	10
14.....	HIT	54.....	19
15 REFLECTION		55.....	3
16.....	32	56 REFLECTION	
17.....	HIT	57.....	19
18.....	HIT	58.....	HIT
19.....	19	59.....	11
20.....	19	60.....	HIT
21.....	HIT	61.....	19
22.....	HIT	62.....	19
23.....	HIT	63.....	19
24.....	13	64.....	14
25.....	3	65.....	19
26.....	28	66 REFLECTION	
27.....	19	67.....	32
28.....	HIT	68 REFLECTION	
29 REFLECTION		69.....	30
30.....	HIT	70 REFLECTION	
31.....	13	71.....	HIT
32 REFLECTION		72.....	HIT
33.....	19	73.....	HIT
34.....	5	74.....	31
35.....	15	75 REFLECTION	
36.....	19	76 REFLECTION	
37.....	HIT	77.....	9
38.....	19	78.....	HIT
39.....	HIT	79.....	20
40 REFLECTION		80.....	HIT

7. RAY ENTERS AT 7

Game	Result	Game	Result
1.....	10	41.....	HIT
2.....	HIT	42.....	30
3.....	9	43.....	HIT
4.....	18	44.....	18
5.....	9	45.....	HIT
6.....	HIT	46.....	18
7.....	HIT	47	REFLECTION
8.....	HIT	48.....	13
9.....	26	49.....	18
10.....	HIT	50.....	HIT
11.....	HIT	51	REFLECTION
12.....	HIT	52.....	18
13.....	13	53.....	12
14.....	9	54.....	HIT
15.....	9	55.....	HIT
16.....	HIT	56.....	HIT
17.....	31	57	REFLECTION
18.....	32	58.....	10
19.....	18	59.....	18
20.....	HIT	60.....	HIT
21.....	HIT	61	REFLECTION
22.....	9	62	REFLECTION
23.....	HIT	63.....	32
24.....	15	64.....	31
25.....	HIT	65.....	18
26.....	HIT	66.....	HIT
27.....	18	67.....	HIT
28.....	5	68.....	HIT
29.....	HIT	69.....	HIT
30.....	HIT	70.....	HIT
31.....	18	71.....	9
32.....	13	72	REFLECTION
33.....	18	73.....	HIT
34.....	HIT	74.....	32
35.....	30	75.....	18
36.....	18	76.....	HIT
37.....	14	77.....	14
38.....	30	78	REFLECTION
39.....	9	79.....	HIT
40.....	HIT	80	REFLECTION

8. RAY ENTERS AT 8

Game	Result	Game	Result
1.....	14	41.....	12
2.....	9	42.....	HIT
3.....	13	43.....	HIT
4.....	17	44.....	17
5.....	11	45.....	HIT
6.....	10	46.....	17
7.....	12	47.....	HIT
8.....	9	48.....	17
9.....	HIT	49.....	17
10.....	HIT	50.....	11
11.....	14	51.....	HIT
12.....	10	52.....	17
13.....	HIT	53.....	HIT
14.....	14	54.....	HIT
15.....	10	55.....	12
16.....	9	56.....	HIT
17.....	HIT	57.....	HIT
18.....	HIT	58.....	17
19.....	17	59.....	17
20.....	HIT	60.....	HIT
21.....	12	61.....	HIT
22.....	HIT	62.....	HIT
23.....	13	63.....	HIT
24.....	17	64.....	HIT
25.....	9	65.....	17
26.....	12	66	REFLECTION
27.....	17	67.....	9
28.....	HIT	68	REFLECTION
29.....	9	69.....	11
30.....	HIT	70	REFLECTION
31.....	17	71.....	10
32.....	17	72.....	HIT
33.....	17	73.....	11
34.....	13	74.....	HIT
35.....	HIT	75.....	17
36.....	17	76	REFLECTION
37.....	17	77.....	17
38.....	HIT	78.....	17
39.....	HIT	79.....	HIT
40	REFLECTION	80.....	HIT

9. RAY ENTERS AT 9

Game	Result	Game	Result
1.....	32	41.....	32
2.....	8	42.....	32
3.....	7	43	REFLECTION
4.....	32	44.....	32
5.....	7	45.....	32
6.....	32	46.....	5
7.....	32	47.....	HIT
8.....	8	48.....	32
9.....	HIT	49.....	2
10	REFLECTION	50.....	HIT
11.....	32	51.....	HIT
12.....	32	52.....	32
13.....	32	53.....	32
14.....	7	54	REFLECTION
15.....	7	55.....	32
16.....	8	56.....	HIT
17.....	32	57.....	HIT
18	REFLECTION	58.....	4
19.....	32	59.....	4
20	REFLECTION	60.....	32
21.....	32	61.....	HIT
22.....	7	62.....	HIT
23.....	HIT	63	REFLECTION
24.....	32	64.....	32
25.....	8	65.....	32
26.....	32	66.....	HIT
27.....	32	67.....	8
28.....	32	68.....	HIT
29.....	8	69.....	32
30.....	32	70.....	HIT
31.....	32	71.....	7
32.....	HIT	72.....	32
33.....	HIT	73.....	32
34.....	32	74	REFLECTION
35.....	HIT	75.....	HIT
36.....	32	76.....	HIT
37.....	HIT	77.....	6
38.....	32	78.....	HIT
39.....	7	79.....	32
40.....	HIT	80.....	HIT

10. RAY ENTERS AT 10

Game	Result	Game	Result
1.....	7	41.....	5
2.....	HIT	42.....	31
3.....	HIT	43.....	HIT
4.....	31	44.....	31
5.....	HIT	45.....	31
6.....	8	46.....	HIT
7.....	4	47	REFLECTION
8.....	HIT	48.....	4
9.....	21	49.....	HIT
10.....	HIT	50.....	HIT
11.....	31	51	REFLECTION
12.....	8	52.....	31
13.....	31	53.....	6
14.....	HIT	54.....	HIT
15.....	8	55.....	31
16.....	HIT	56	REFLECTION
17	REFLECTION	57	REFLECTION
18.....	HIT	58.....	7
19.....	2	59.....	HIT
20.....	HIT	60.....	31
21.....	4	61	REFLECTION
22.....	HIT	62	REFLECTION
23.....	23	63.....	HIT
24.....	2	64	REFLECTION
25.....	HIT	65.....	31
26.....	3	66.....	13
27.....	31	67.....	HIT
28	REFLECTION	68.....	HIT
29.....	HIT	69.....	31
30.....	31	70.....	HIT
31.....	31	71.....	8
32.....	HIT	72.....	31
33.....	4	73.....	4
34.....	31	74.....	HIT
35.....	HIT	75.....	15
36.....	31	76.....	HIT
37.....	3	77.....	HIT
38.....	31	78	REFLECTION
39.....	HIT	79.....	5
40.....	HIT	80	REFLECTION

11. RAY ENTERS AT 11

Game	Result	Game	Result
1.....	HIT	41.....	HIT
2.....	17	42	REFLECTION
3.....	HIT	43	REFLECTION
4.....	6	44.....	30
5.....	8	45.....	30
6.....	HIT	46.....	HIT
7.....	HIT	47.....	6
8.....	14	48.....	5
9.....	22	49.....	5
10	REFLECTION	50.....	8
11.....	30	51.....	HIT
12.....	HIT	52.....	6
13.....	4	53.....	HIT
14.....	HIT	54	REFLECTION
15	REFLECTION	55.....	30
16.....	14	56.....	30
17.....	HIT	57.....	30
18	REFLECTION	58.....	HIT
19.....	3	59.....	6
20	REFLECTION	60.....	30
21.....	HIT	61.....	18
22.....	13	62.....	18
23.....	30	63	REFLECTION
24.....	4	64.....	HIT
25.....	17	65.....	5
26.....	HIT	66.....	HIT
27.....	5	67.....	12
28.....	HIT	68.....	30
29	REFLECTION	69.....	8
30.....	30	70.....	30
31.....	3	71.....	HIT
32.....	30	72.....	30
33.....	HIT	73.....	8
34.....	30	74	REFLECTION
35	REFLECTION	75.....	HIT
36.....	30	76.....	HIT
37.....	HIT	77.....	13
38	REFLECTION	78.....	HIT
39.....	HIT	79	REFLECTION
40.....	30	80.....	HIT

12. RAY ENTERS AT 12

Game	Result	Game	Result
1.....	HIT	41.....	8
2.....	3	42.....	HIT
3.....	HIT	43.....	29
4.....	HIT	44.....	29
5.....	HIT	45.....	29
6.....	14	46.....	30
7.....	8	47.....	HIT
8.....	29	48.....	6
9.....	23	49.....	HIT
10.....	21	50.....	HIT
11.....	29	51.....	3
12.....	17	52.....	HIT
13.....	HIT	53.....	7
14.....	29	54.....	29
15.....	HIT	55.....	8
16.....	27	56.....	29
17	REFLECTION	57.....	29
18.....	HIT	58.....	18
19.....	HIT	59.....	HIT
20.....	29	60.....	29
21.....	8	61.....	29
22.....	HIT	62.....	29
23.....	29	63	REFLECTION
24.....	HIT	64	REFLECTION
25.....	29	65.....	HIT
26.....	8	66.....	HIT
27.....	HIT	67.....	11
28	REFLECTION	68.....	29
29.....	HIT	69.....	HIT
30.....	29	70.....	29
31.....	HIT	71.....	17
32.....	29	72.....	29
33.....	21	73.....	HIT
34.....	29	74.....	17
35.....	HIT	75.....	13
36.....	29	76	REFLECTION
37.....	4	77.....	HIT
38.....	HIT	78.....	18
39.....	29	79.....	HIT
40.....	29	80	REFLECTION

13. RAY ENTERS AT 13

Game	Result	Game	Result
1.....	20	41.....	HIT
2.....	HIT	42	REFLECTION
3.....	8	43.....	HIT
4.....	19	44.....	3
5.....	17	45	REFLECTION
6.....	28	46.....	HIT
7.....	HIT	47.....	HIT
8.....	28	48.....	7
9.....	28	49.....	20
10.....	28	50.....	17
11.....	28	51.....	28
12.....	HIT	52.....	HIT
13.....	7	53	REFLECTION
14.....	28	54.....	28
15	REFLECTION	55.....	HIT
16.....	28	56.....	28
17.....	15	57.....	28
18	REFLECTION	58.....	21
19	REFLECTION	59.....	19
20.....	HIT	60.....	28
21.....	HIT	61	REFLECTION
22.....	11	62	REFLECTION
23.....	8	63.....	HIT
24.....	6	64.....	5
25.....	28	65.....	HIT
26.....	HIT	66.....	10
27.....	HIT	67.....	HIT
28.....	28	68.....	HIT
29.....	17	69	REFLECTION
30.....	28	70.....	28
31.....	6	71.....	26
32.....	7	72.....	28
33.....	22	73.....	17
34.....	8	74.....	28
35	REFLECTION	75.....	12
36.....	5	76.....	HIT
37.....	HIT	77.....	11
38.....	HIT	78.....	28
39.....	3	79	REFLECTION
40.....	28	80.....	HIT

14. RAY ENTERS AT 14

Game	Result	Game	Result
1.....	8	41.....	17
2.....	19	42.....	17
3.....	HIT	43.....	HIT
4.....	HIT	44.....	HIT
5.....	HIT	45.....	HIT
6.....	12	46.....	6
7.....	17	47.....	HIT
8.....	11	48.....	HIT
9.....	27	49.....	22
10.....	27	50.....	HIT
11.....	8	51	REFLECTION
12.....	HIT	52.....	19
13.....	HIT	53.....	HIT
14.....	8	54.....	5
15.....	27	55.....	17
16.....	11	56.....	2
17.....	HIT	57.....	27
18.....	HIT	58.....	27
19.....	HIT	59.....	HIT
20.....	HIT	60	REFLECTION
21.....	HIT	61.....	HIT
22	REFLECTION	62.....	HIT
23.....	HIT	63	REFLECTION
24.....	HIT	64.....	6
25.....	HIT	65.....	HIT
26.....	17	66.....	HIT
27.....	20	67.....	17
28.....	27	68.....	HIT
29.....	27	69.....	HIT
30.....	27	70.....	27
31.....	HIT	71.....	HIT
32.....	HIT	72.....	27
33.....	27	73.....	27
34.....	HIT	74.....	HIT
35.....	23	75.....	HIT
36.....	HIT	76	REFLECTION
37.....	7	77.....	7
38.....	HIT	78.....	HIT
39	REFLECTION	79.....	17
40.....	27	80	REFLECTION

15. RAY ENTERS AT 15

Game	Result	Game	Result
1.....	HIT	41.....	20
2.....	HIT	42.....	HIT
3.....	17	43.....	30
4	REFLECTION	44	REFLECTION
5.....	HIT	45	REFLECTION
6.....	HIT	46.....	HIT
7.....	HIT	47.....	17
8.....	HIT	48.....	18
9	REFLECTION	49.....	HIT
10.....	HIT	50.....	HIT
11.....	HIT	51.....	HIT
12.....	HIT	52.....	26
13	REFLECTION	53	REFLECTION
14.....	HIT	54.....	HIT
15.....	26	55.....	HIT
16.....	HIT	56.....	HIT
17.....	13	57	REFLECTION
18	REFLECTION	58.....	26
19.....	22	59.....	21
20	REFLECTION	60.....	HIT
21.....	17	61	REFLECTION
22.....	HIT	62	REFLECTION
23.....	17	63.....	HIT
24.....	7	64.....	29
25.....	19	65.....	20
26.....	HIT	66.....	17
27.....	23	67.....	HIT
28.....	29	68	REFLECTION
29.....	26	69.....	17
30	REFLECTION	70	REFLECTION
31	REFLECTION	71.....	HIT
32.....	HIT	72	REFLECTION
33.....	26	73.....	26
34.....	17	74.....	HIT
35.....	6	75.....	10
36.....	20	76.....	HIT
37.....	HIT	77.....	HIT
38.....	HIT	78.....	20
39.....	HIT	79.....	HIT
40	REFLECTION	80.....	19

16. RAY ENTERS AT 16

Game	Result	Game	Result
1.....	17	41.....	25
2.....	HIT	42.....	19
3.....	21	43.....	HIT
4.....	HIT	44.....	HIT
5.....	21	45.....	21
6.....	17	46.....	19
7.....	22	47.....	22
8.....	17	48.....	25
9.....	HIT	49.....	23
10.....	HIT	50.....	19
11.....	17	51	REFLECTION
12.....	18	52.....	25
13.....	HIT	53.....	21
14.....	17	54.....	20
15.....	25	55.....	HIT
16.....	17	56.....	HIT
17.....	HIT	57.....	HIT
18.....	25	58.....	25
19.....	HIT	59.....	25
20.....	HIT	60	REFLECTION
21.....	21	61.....	HIT
22	REFLECTION	62.....	HIT
23.....	18	63.....	20
24.....	HIT	64.....	HIT
25.....	25	65.....	21
26.....	19	66.....	25
27.....	25	67.....	22
28.....	HIT	68.....	HIT
29.....	25	69.....	25
30.....	HIT	70.....	HIT
31.....	HIT	71.....	18
32.....	HIT	72.....	HIT
33.....	25	73.....	25
34.....	21	74.....	18
35.....	HIT	75.....	HIT
36.....	HIT	76.....	23
37.....	18	77.....	18
38	REFLECTION	78.....	25
39	REFLECTION	79.....	22
40.....	HIT	80.....	25

17. RAY ENTERS AT 17

Game	Result	Game	Result
1.....	16	41.....	14
2.....	11	42.....	14
3.....	15	43.....	HIT
4.....	8	44.....	8
5.....	13	45.....	HIT
6.....	16	46.....	8
7.....	14	47.....	15
8.....	16	48.....	8
9.....	HIT	49.....	8
10.....	HIT	50.....	13
11.....	16	51.....	HIT
12.....	12	52.....	8
13.....	HIT	53.....	HIT
14.....	16	54.....	HIT
15.....	HIT	55.....	14
16.....	16	56.....	HIT
17.....	HIT	57.....	HIT
18.....	HIT	58.....	8
19.....	8	59.....	8
20.....	HIT	60	REFLECTION
21.....	15	61.....	HIT
22.....	HIT	62.....	HIT
23.....	15	63.....	HIT
24.....	8	64.....	HIT
25.....	11	65.....	8
26.....	14	66.....	15
27.....	8	67.....	14
28.....	HIT	68.....	HIT
29.....	13	69.....	15
30.....	HIT	70.....	HIT
31.....	8	71.....	12
32.....	8	72.....	HIT
33.....	8	73.....	13
34.....	15	74.....	12
35.....	HIT	75.....	8
36.....	8	76.....	HIT
37.....	8	77.....	8
38.....	HIT	78.....	8
39.....	HIT	79.....	14
40.....	HIT	80.....	HIT

18. RAY ENTERS AT 18

Game	Result	Game	Result
1.....	HIT	41.....	HIT
2.....	HIT	42.....	HIT
3.....	HIT	43	REFLECTION
4.....	7	44.....	7
5.....	HIT	45.....	HIT
6.....	HIT	46.....	7
7.....	HIT	47.....	HIT
8.....	HIT	48.....	15
9	REFLECTION	49.....	7
10.....	HIT	50.....	HIT
11.....	HIT	51.....	22
12.....	16	52.....	7
13	REFLECTION	53.....	HIT
14.....	HIT	54.....	30
15.....	28	55.....	HIT
16.....	HIT	56.....	HIT
17	REFLECTION	57	REFLECTION
18	REFLECTION	58.....	12
19.....	7	59.....	7
20	REFLECTION	60.....	HIT
21.....	HIT	61.....	11
22.....	25	62.....	11
23.....	16	63.....	5
24	REFLECTION	64	REFLECTION
25.....	HIT	65.....	7
26.....	HIT	66.....	HIT
27.....	7	67.....	HIT
28	REFLECTION	68	REFLECTION
29.....	HIT	69.....	HIT
30.....	HIT	70	REFLECTION
31.....	7	71.....	16
32	REFLECTION	72	REFLECTION
33.....	7	73.....	HIT
34.....	HIT	74.....	16
35.....	HIT	75.....	7
36.....	7	76.....	HIT
37.....	16	77.....	16
38.....	25	78.....	12
39.....	19	79.....	HIT
40	REFLECTION	80.....	HIT

19. RAY ENTERS AT 19

Game	Result	Game	Result
1.....25	41.....HIT		
2.....14	42.....16		
3.....HIT	43.....HIT		
4.....13	44.....6		
5.....28	45.....HIT		
6.....HIT	46.....16		
7.....20	47.....HIT		
8.....HIT	48.....HIT		
9.....6	49.....6		
10.....6	50.....16		
11 REFLECTION	51.....6		
12.....HIT	52.....14		
13 REFLECTION	53.....HIT		
14 REFLECTION	54.....6		
15.....29	55.....5		
16.....21	56.....31		
17.....HIT	57.....6		
18.....HIT	58.....HIT		
19.....6	59.....13		
20.....6	60 REFLECTION		
21.....HIT	61.....6		
22.....HIT	62.....6		
23.....HIT	63.....6		
24.....HIT	64.....HIT		
25.....15	65.....6		
26.....16	66.....26		
27.....6	67.....21		
28.....HIT	68.....HIT		
29 REFLECTION	69.....26		
30.....HIT	70.....HIT		
31 REFLECTION	71.....HIT		
32.....HIT	72.....HIT		
33.....6	73.....21		
34.....20	74 REFLECTION		
35 REFLECTION	75 REFLECTION		
36.....6	76.....2		
37.....HIT	77.....HIT		
38.....6	78.....HIT		
39.....18	79.....29		
40.....HIT	80.....15		

20. RAY ENTERS AT 20

Game	Result	Game	Result
1.....13	41.....15		
2 REFLECTION	42 REFLECTION		
3.....HIT	43 REFLECTION		
4 REFLECTION	44.....5		
5.....HIT	45.....5		
6.....22	46.....HIT		
7.....19	47.....HIT		
8.....25	48.....26		
9.....5	49.....13		
10.....5	50.....HIT		
11.....HIT	51.....5		
12.....25	52.....HIT		
13.....HIT	53.....29		
14.....HIT	54.....16		
15.....30	55 REFLECTION		
16.....5	56.....5		
17 REFLECTION	57.....5		
18.....26	58.....HIT		
19.....5	59.....HIT		
20.....5	60.....25		
21.....5	61.....5		
22.....26	62.....5		
23.....25	63.....16		
24 REFLECTION	64 REFLECTION		
25.....HIT	65.....15		
26.....HIT	66.....5		
27.....14	67.....5		
28 REFLECTION	68.....HIT		
29.....HIT	69.....HIT		
30 REFLECTION	70.....5		
31.....HIT	71 REFLECTION		
32 REFLECTION	72 REFLECTION		
33.....5	73.....5		
34.....19	74.....HIT		
35.....HIT	75.....HIT		
36.....15	76.....5		
37.....25	77.....25		
38.....5	78.....15		
39.....HIT	79.....6		
40 REFLECTION	80.....HIT		

21. RAY ENTERS AT 21

Game	Result	Game	Result
1.....HIT	41.....HIT		
2.....HIT	42.....HIT		
3.....16	43.....5		
4.....HIT	44.....4		
5.....16	45.....16		
6.....4	46.....25		
7.....HIT	47.....28		
8.....4	48.....27		
9.....10	49.....HIT		
10.....12	50.....25		
11 REFLECTION	51.....4		
12.....3	52.....HIT		
13 REFLECTION	53.....16		
14.....25	54.....HIT		
15.....31	55.....HIT		
16.....19	56.....4		
17.....26	57.....4		
18.....4	58.....13		
19.....4	59.....15		
20.....4	60.....4		
21.....16	61.....4		
22.....4	62.....4		
23.....4	63.....HIT		
24.....26	64.....25		
25.....HIT	65.....16		
26.....25	66.....HIT		
27.....HIT	67.....19		
28.....HIT	68.....4		
29.....28	69.....27		
30.....4	70.....4		
31 REFLECTION	71.....HIT		
32.....31	72.....HIT		
33.....12	73.....19		
34.....16	74 REFLECTION		
35 REFLECTION	75 REFLECTION		
36 REFLECTION	76.....4		
37.....5	77.....26		
38.....4	78.....HIT		
39.....25	79.....HIT		
40.....31	80.....23		

22. RAY ENTERS AT 22

Game	Result	Game	Result
1.....HIT	41.....26		
2 REFLECTION	42 REFLECTION		
3.....HIT	43.....HIT		
4 REFLECTION	44 REFLECTION		
5.....HIT	45.....HIT		
6.....20	46.....HIT		
7.....16	47.....16		
8.....3	48.....28		
9.....11	49.....14		
10 REFLECTION	50.....HIT		
11.....HIT	51.....18		
12.....HIT	52.....27		
13.....HIT	53.....HIT		
14.....30	54.....23		
15.....3	55 REFLECTION		
16.....HIT	56.....3		
17.....3	57.....3		
18.....3	58.....HIT		
19.....15	59.....HIT		
20.....3	60.....3		
21.....HIT	61.....3		
22.....3	62 REFLECTION		
23.....3	63.....25		
24.....HIT	64.....26		
25.....26	65.....HIT		
26.....26	66.....28		
27.....HIT	67.....16		
28 REFLECTION	68.....3		
29.....3	69.....3		
30 REFLECTION	70 REFLECTION		
31 REFLECTION	71 REFLECTION		
32.....3	72 REFLECTION		
33.....13	73.....HIT		
34.....HIT	74.....25		
35.....31	75.....HIT		
36.....HIT	76.....3		
37.....HIT	77.....HIT		
38.....3	78.....HIT		
39.....HIT	79.....16		
40.....3	80.....3		

23. RAY ENTERS AT 23

Game	Result	Game	Result
1.....	26	41.....	HIT
2.....	HIT	42.....	2
3.....	25	43.....	26
4.....	28	44.....	HIT
5.....	25	45.....	HIT
6.....	HIT	46.....	HIT
7.....	HIT	47.....	HIT
8.....	2	48.....	29
9.....	12	49.....	16
10.....	HIT	50.....	27
11 REFLECTION		51.....	HIT
12.....	HIT	52.....	2
13.....	28	53.....	25
14.....	2	54.....	22
15.....	2	55.....	HIT
16.....	25	56 REFLECTION	
17.....	2	57 REFLECTION	
18.....	5	58.....	28
19 REFLECTION		59.....	26
20.....	30	60.....	2
21.....	25	61 REFLECTION	
22.....	2	62.....	HIT
23.....	10	63.....	HIT
24.....	28	64.....	2
25.....	HIT	65.....	25
26.....	HIT	66.....	2
27.....	15	67.....	HIT
28.....	HIT	68.....	HIT
29.....	2	69.....	2
30.....	HIT	70.....	HIT
31.....	HIT	71.....	HIT
32.....	2	72.....	HIT
33.....	HIT	73.....	HIT
34.....	HIT	74.....	2
35.....	14	75.....	26
36 REFLECTION		76.....	16
37.....	27	77.....	28
38.....	2	78.....	26
39.....	HIT	79 REFLECTION	
40.....	2	80.....	21

24. RAY ENTERS AT 24

Game	Result	Game	Result
1.....	1	41.....	27
2.....	28	42.....	1
3.....	29	43.....	1
4.....	1	44.....	HIT
5.....	1	45.....	25
6.....	25	46.....	26
7.....	25	47.....	25
8.....	1	48.....	1
9.....	HIT	49.....	HIT
10 REFLECTION		50.....	1
11.....	HIT	51.....	25
12.....	26	52.....	1
13.....	1	53.....	1
14.....	1	54.....	HIT
15.....	1	55.....	27
16.....	HIT	56.....	HIT
17.....	1	57.....	HIT
18.....	HIT	58.....	HIT
19.....	HIT	59.....	HIT
20.....	HIT	60.....	1
21.....	1	61.....	HIT
22.....	HIT	62 REFLECTION	
23.....	HIT	63.....	28
24.....	HIT	64.....	1
25.....	30	65.....	1
26.....	29	66.....	1
27.....	HIT	67.....	25
28 REFLECTION		68.....	HIT
29.....	1	69.....	1
30 REFLECTION		70 REFLECTION	
31.....	26	71.....	28
32.....	1	72.....	HIT
33.....	HIT	73.....	28
34.....	25	74.....	1
35.....	HIT	75.....	HIT
36.....	HIT	76.....	HIT
37.....	29	77.....	1
38.....	1	78.....	HIT
39.....	26	79.....	HIT
40.....	1	80.....	HIT

25. RAY ENTERS AT 25

Game	Result	Game	Result
1.....	19	41.....	16
2.....	HIT	42.....	HIT
3.....	23	43.....	HIT
4.....	HIT	44.....	HIT
5.....	23	45.....	24
6.....	24	46.....	21
7.....	24	47.....	24
8.....	20	48.....	16
9.....	HIT	49 REFLECTION	
10.....	HIT	50.....	21
11 REFLECTION		51.....	24
12.....	20	52.....	16
13.....	HIT	53.....	23
14.....	21	54 REFLECTION	
15.....	16	55.....	HIT
16.....	23	56.....	HIT
17.....	HIT	57.....	HIT
18.....	16	58.....	16
19.....	HIT	59.....	16
20.....	HIT	60.....	20
21.....	23	61.....	HIT
22.....	18	62.....	HIT
23.....	20	63.....	22
24.....	HIT	64.....	21
25.....	16	65.....	23
26.....	21	66.....	16
27.....	16	67.....	24
28.....	HIT	68 REFLECTION	
29.....	16	69.....	16
30.....	HIT	70.....	HIT
31.....	HIT	71.....	HIT
32.....	HIT	72.....	HIT
33.....	16	73.....	16
34.....	24	74.....	22
35.....	HIT	75.....	HIT
36 REFLECTION		76 REFLECTION	
37.....	20	77.....	20
38.....	18	78.....	16
39.....	21	79.....	HIT
40.....	HIT	80.....	16

26. RAY ENTERS AT 26

Game	Result	Game	Result
1.....	23	41.....	22
2.....	HIT	42.....	3
3.....	HIT	43.....	23
4 REFLECTION		44 REFLECTION	
5.....	HIT	45.....	HIT
6.....	HIT	46.....	24
7.....	HIT	47.....	HIT
8.....	HIT	48.....	20
9.....	7	49.....	HIT
10.....	HIT	50.....	HIT
11.....	HIT	51.....	HIT
12.....	24	52.....	15
13.....	5	53.....	HIT
14.....	HIT	54.....	HIT
15.....	15	55.....	HIT
16.....	HIT	56.....	HIT
17.....	21	57 REFLECTION	
18.....	20	58.....	15
19 REFLECTION		59.....	23
20 REFLECTION		60.....	HIT
21.....	HIT	61 REFLECTION	
22.....	20	62.....	30
23.....	HIT	63.....	HIT
24.....	21	64.....	22
25.....	22	65.....	HIT
26.....	22	66.....	19
27 REFLECTION		67.....	HIT
28.....	1	68.....	HIT
29.....	15	69.....	19
30.....	1	70.....	HIT
31.....	24	71.....	13
32.....	HIT	72 REFLECTION	
33.....	15	73.....	15
34.....	HIT	74.....	HIT
35.....	HIT	75.....	23
36.....	HIT	76.....	HIT
37.....	HIT	77.....	21
38.....	HIT	78.....	23
39.....	24	79 REFLECTION	
40.....	HIT	80 REFLECTION	

27. RAY ENTERS AT 27

Game	Result	Game	Result
1.....	HIT	41.....	24
2.....	HIT	42.....	4
3.....	HIT	43.....	HIT
4.....	HIT	44.....	HIT
5.....	29	45.....	1
6.....	1	46.....	HIT
7.....	1	47.....	1
8.....	30	48.....	21
9.....	14	49	REFLECTION
10.....	14	50.....	23
11	REFLECTION	51.....	29
12.....	HIT	52.....	22
13.....	HIT	53.....	2
14.....	HIT	54	REFLECTION
15.....	14	55.....	24
16.....	12	56	REFLECTION
17.....	HIT	57.....	14
18.....	HIT	58.....	14
19.....	HIT	59.....	HIT
20.....	HIT	60.....	5
21.....	29	61.....	HIT
22.....	HIT	62.....	HIT
23.....	HIT	63.....	HIT
24.....	HIT	64.....	HIT
25.....	HIT	65.....	2
26.....	HIT	66.....	HIT
27.....	HIT	67.....	1
28.....	14	68	REFLECTION
29.....	14	69.....	21
30.....	14	70.....	14
31.....	HIT	71.....	3
32.....	HIT	72.....	14
33.....	14	73.....	14
34.....	1	74.....	3
35	REFLECTION	75.....	HIT
36	REFLECTION	76	REFLECTION
37.....	23	77.....	HIT
38.....	HIT	78.....	HIT
39.....	HIT	79.....	1
40.....	14	80.....	HIT

28. RAY ENTERS AT 28

Game	Result	Game	Result
1.....	29	41.....	HIT
2.....	24	42.....	HIT
3.....	HIT	43.....	31
4.....	23	44	REFLECTION
5.....	19	45.....	6
6.....	13	46.....	HIT
7.....	HIT	47.....	21
8.....	13	48.....	22
9.....	13	49	REFLECTION
10.....	13	50.....	HIT
11.....	13	51.....	13
12.....	1	52.....	HIT
13.....	23	53.....	HIT
14.....	13	54.....	13
15.....	18	55.....	HIT
16.....	13	56.....	13
17.....	4	57.....	13
18	REFLECTION	58.....	23
19	REFLECTION	59	REFLECTION
20	REFLECTION	60.....	13
21.....	HIT	61.....	HIT
22	REFLECTION	62.....	HIT
23.....	5	63.....	24
24.....	23	64.....	3
25.....	13	65.....	HIT
26.....	6	66.....	22
27	REFLECTION	67.....	HIT
28.....	13	68.....	5
29.....	21	69.....	HIT
30.....	13	70.....	13
31	REFLECTION	71.....	24
32.....	HIT	72.....	13
33	REFLECTION	73.....	24
34.....	3	74.....	13
35.....	HIT	75.....	29
36.....	3	76.....	HIT
37.....	HIT	77.....	23
38.....	HIT	78.....	13
39.....	1	79.....	HIT
40.....	13	80	REFLECTION

29. RAY ENTERS AT 29

Game	Result	Game	Result
1.....	28	41.....	1
2.....	HIT	42.....	6
3.....	24	43.....	12
4.....	HIT	44.....	12
5.....	27	45.....	12
6.....	HIT	46.....	1
7.....	HIT	47.....	HIT
8.....	12	48.....	23
9	REFLECTION	49.....	HIT
10.....	HIT	50.....	2
11.....	12	51.....	27
12.....	HIT	52.....	HIT
13.....	HIT	53.....	20
14.....	12	54.....	12
15.....	19	55.....	1
16	REFLECTION	56.....	12
17.....	HIT	57.....	12
18.....	HIT	58.....	HIT
19	REFLECTION	59.....	HIT
20.....	12	60.....	12
21.....	27	61.....	12
22.....	HIT	62.....	12
23.....	12	63.....	HIT
24	REFLECTION	64.....	15
25.....	12	65.....	HIT
26.....	24	66.....	HIT
27.....	HIT	67.....	2
28.....	15	68.....	12
29.....	HIT	69.....	4
30.....	12	70.....	12
31.....	HIT	71.....	HIT
32.....	12	72.....	12
33.....	HIT	73.....	HIT
34.....	12	74.....	HIT
35	REFLECTION	75.....	28
36.....	12	76	REFLECTION
37.....	24	77.....	HIT
38.....	HIT	78	REFLECTION
39.....	12	79.....	19
40.....	12	80	REFLECTION

30. RAY ENTERS AT 30

Game	Result	Game	Result
1.....	HIT	41.....	HIT
2.....	1	42.....	7
3.....	HIT	43.....	15
4.....	2	44.....	11
5.....	HIT	45.....	11
6.....	HIT	46.....	12
7.....	HIT	47.....	4
8.....	27	48.....	HIT
9.....	HIT	49	REFLECTION
10.....	HIT	50.....	6
11.....	11	51.....	HIT
12.....	4	52.....	3
13.....	2	53.....	HIT
14.....	22	54.....	18
15.....	20	55.....	11
16.....	HIT	56.....	11
17.....	5	57.....	11
18	REFLECTION	58	REFLECTION
19.....	HIT	59	REFLECTION
20.....	23	60.....	11
21.....	HIT	61	REFLECTION
22	REFLECTION	62.....	26
23.....	11	63.....	1
24.....	HIT	64.....	HIT
25.....	24	65.....	3
26.....	HIT	66.....	HIT
27	REFLECTION	67.....	4
28.....	HIT	68.....	11
29.....	31	69.....	6
30.....	11	70.....	11
31.....	1	71.....	1
32.....	11	72.....	11
33	REFLECTION	73.....	HIT
34.....	11	74.....	HIT
35.....	7	75	REFLECTION
36.....	11	76.....	HIT
37.....	HIT	77.....	2
38.....	7	78.....	HIT
39.....	HIT	79.....	HIT
40.....	11	80.....	HIT

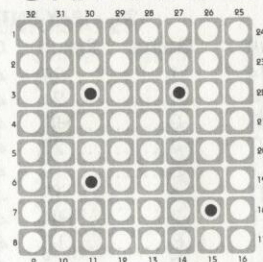
31. RAY ENTERS AT 31

Game	Result	Game	Result
1.....	2	41.....	3
2.....	HIT	42.....	10
3.....	1	43.....	28
4.....	10	44.....	10
5.....	2	45.....	10
6.....	6	46.....	HIT
7.....	2	47.....	HIT
8.....	HIT	48.....	2
9 REFLECTION		49.....	HIT
10 REFLECTION		50.....	HIT
11.....	10	51.....	1
12.....	6	52.....	10
13.....	10	53.....	4
14.....	HIT	54.....	HIT
15.....	21	55.....	10
16 REFLECTION		56.....	19
17.....	7	57 REFLECTION	
18.....	HIT	58.....	HIT
19 REFLECTION		59.....	HIT
20 REFLECTION		60.....	10
21.....	2	61.....	HIT
22.....	HIT	62.....	HIT
23 REFLECTION		63.....	HIT
24 REFLECTION		64.....	7
25.....	HIT	65.....	10
26.....	1	66.....	3
27.....	10	67.....	HIT
28.....	3	68.....	HIT
29.....	30	69.....	10
30.....	10	70 REFLECTION	
31.....	10	71.....	HIT
32.....	21	72.....	10
33 REFLECTION		73.....	1
34.....	10	74.....	6
35.....	22	75.....	HIT
36.....	10	76 REFLECTION	
37 REFLECTION		77.....	3
38.....	10	78 REFLECTION	
39.....	HIT	79.....	3
40.....	21	80 REFLECTION	

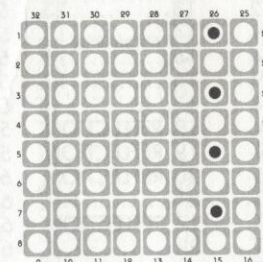
32. RAY ENTERS AT 32

Game	Result	Game	Result
1.....	9	41.....	9
2.....	6	42.....	9
3.....	5	43.....	HIT
4.....	9	44.....	9
5.....	5	45.....	9
6.....	9	46.....	3
7.....	9	47.....	HIT
8.....	5	48.....	9
9.....	1	49 REFLECTION	
10.....	HIT	50.....	HIT
11.....	9	51.....	HIT
12.....	9	52.....	9
13.....	9	53.....	9
14.....	3	54.....	HIT
15.....	HIT	55.....	9
16.....	6	56.....	HIT
17.....	9	57.....	HIT
18.....	7	58 REFLECTION	
19.....	9	59.....	2
20.....	HIT	60.....	9
21.....	9	61 REFLECTION	
22.....	5	62.....	1
23.....	HIT	63.....	7
24.....	9	64.....	9
25.....	1	65.....	9
26.....	9	66.....	HIT
27.....	9	67.....	6
28.....	9	68.....	HIT
29.....	HIT	69.....	9
30.....	9	70.....	HIT
31.....	9	71.....	5
32.....	HIT	72.....	9
33.....	HIT	73.....	9
34.....	9	74.....	7
35.....	HIT	75 REFLECTION	
36.....	9	76.....	HIT
37.....	HIT	77.....	4
38.....	9	78.....	HIT
39.....	5	79.....	9
40.....	HIT	80.....	HIT

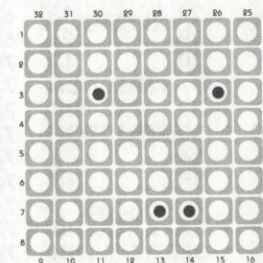
GAME SOLUTIONS



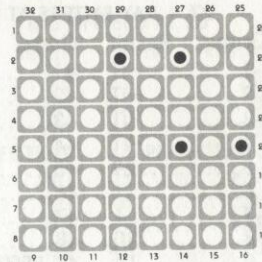
GAME 1
NORM 13



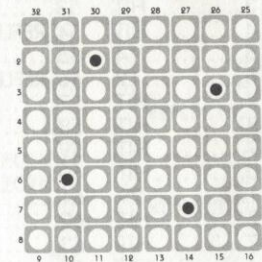
GAME 11
NORM 13



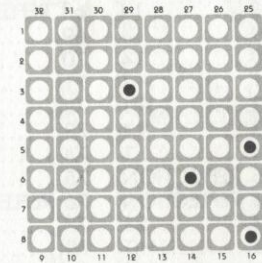
GAME 21
NORM 12



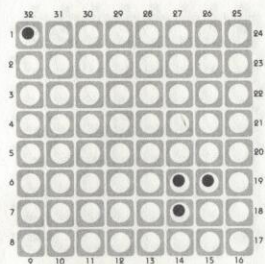
GAME 31
NORM 11



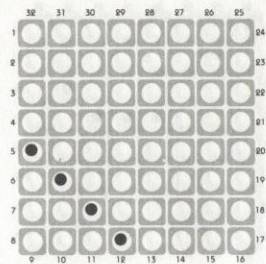
GAME 3
NORM 8



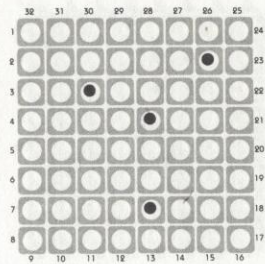
GAME 13
NORM 13



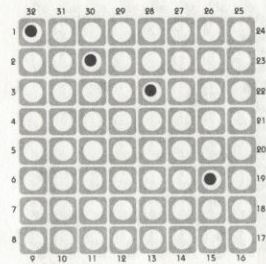
GAME 23
NORM 10



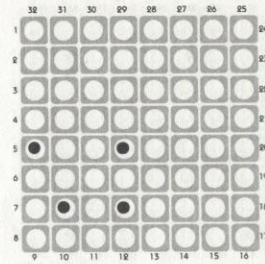
GAME 15
NORM 10



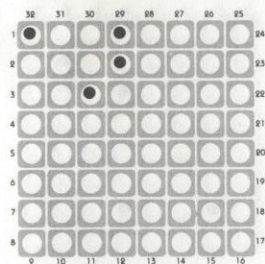
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NORM 11



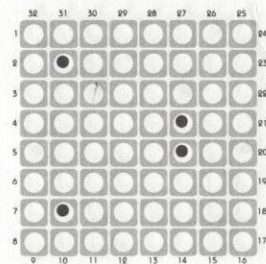
GAME 37
NORM 9



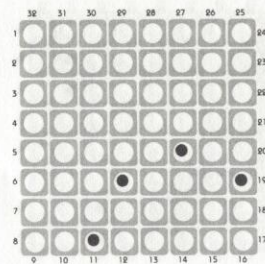
GAME 29
NORM 14



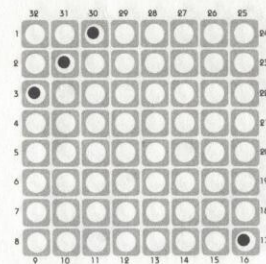
GAME 33
NORM 13



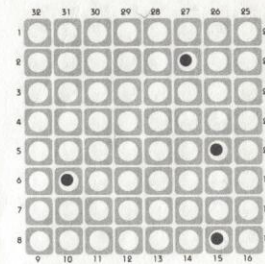
GAME 25
NORM 13



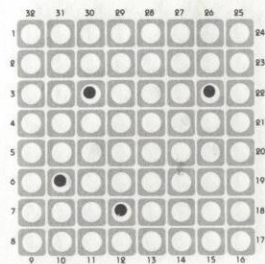
GAME 17
NORM 13



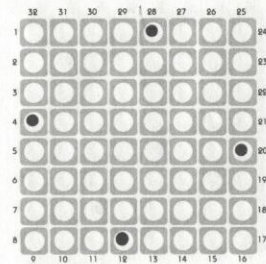
GAME 9
NORM 11



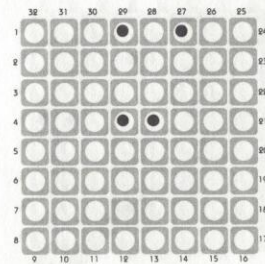
GAME 39
NORM 11



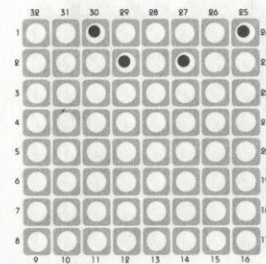
GAME 5
NORM 9



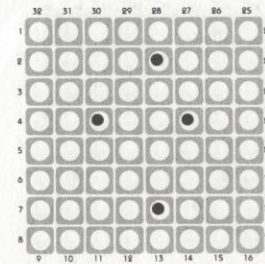
GAME 35
NORM 10



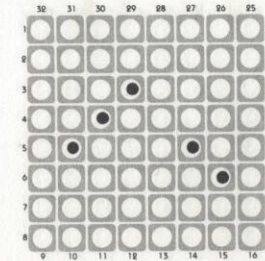
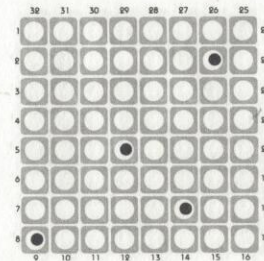
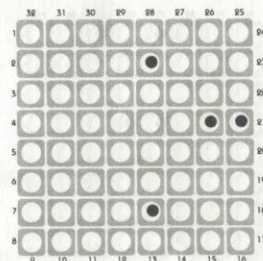
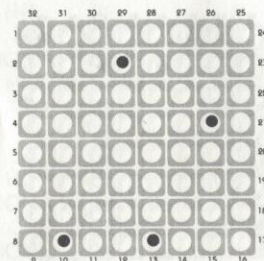
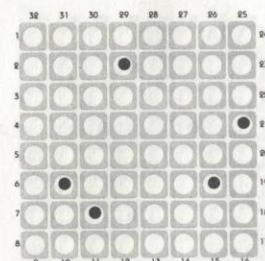
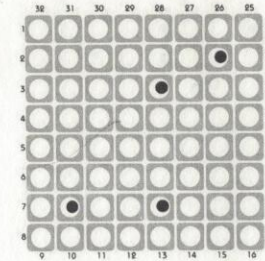
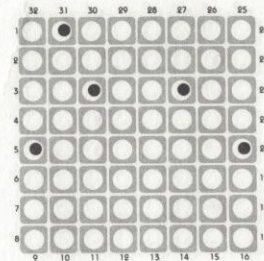
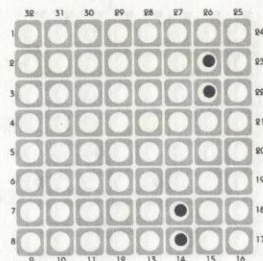
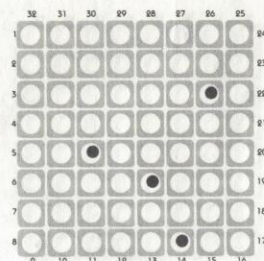
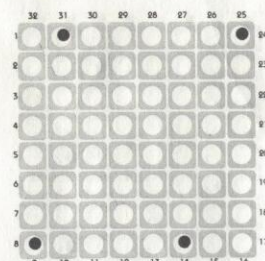
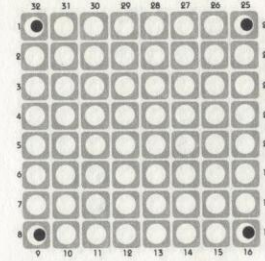
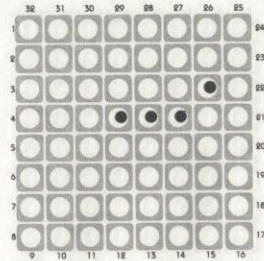
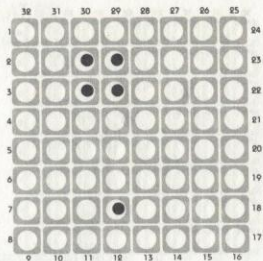
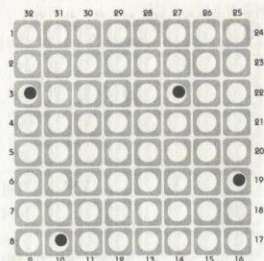
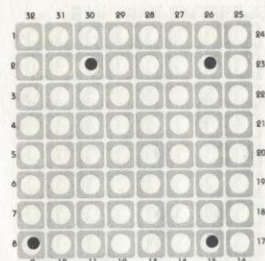
GAME 27
NORM 15

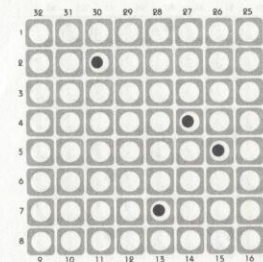
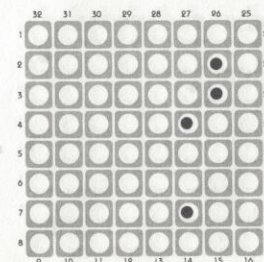
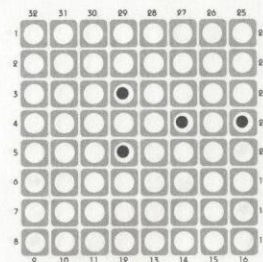
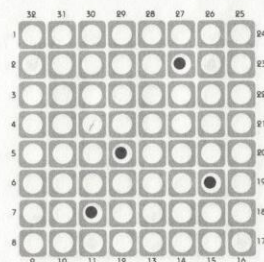
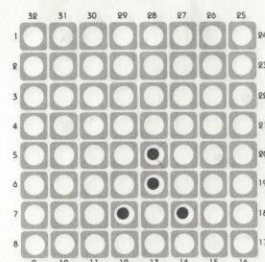
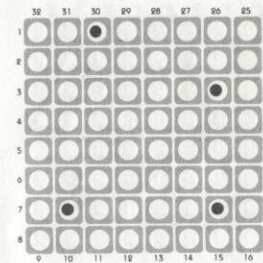
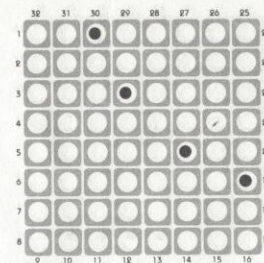
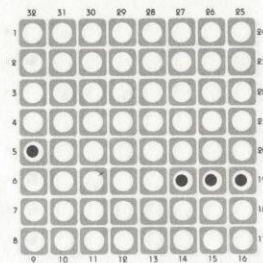
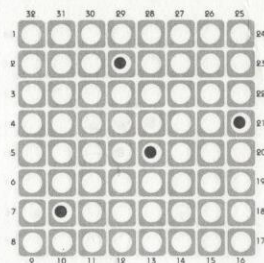
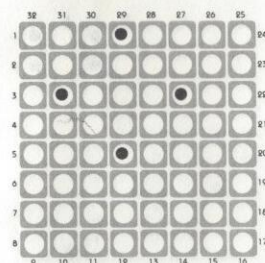
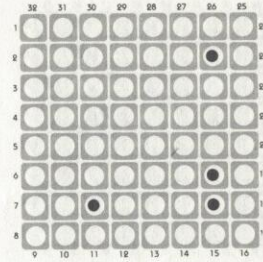
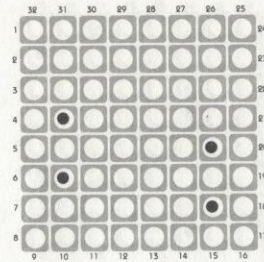
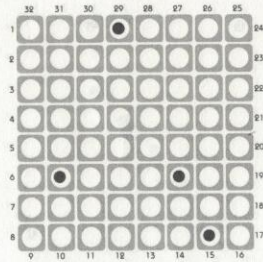
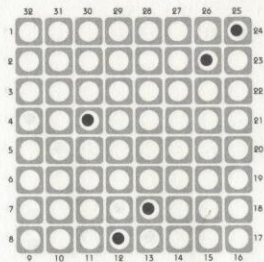
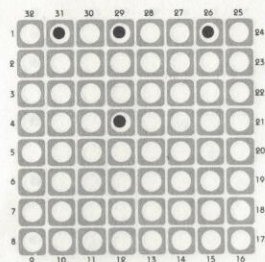


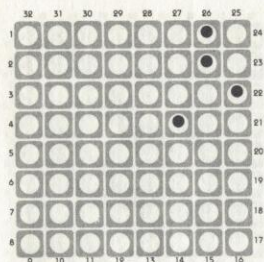
GAME 19
NORM 12

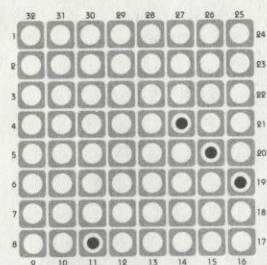


GAME 41
NORM 8

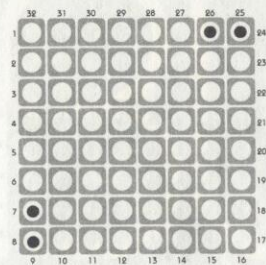




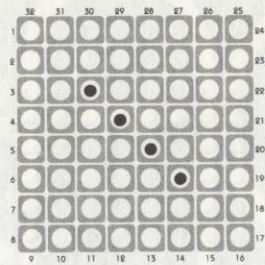




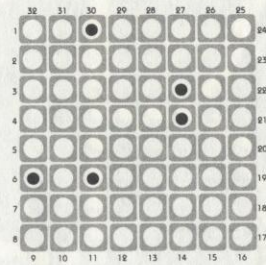
GAME 64
NORM 9



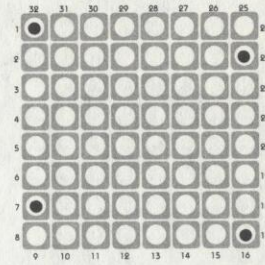
GAME 56
NORM 16



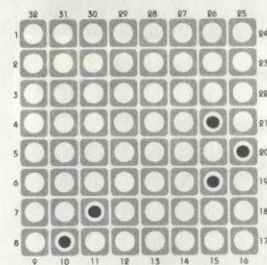
GAME 48
NORM 8



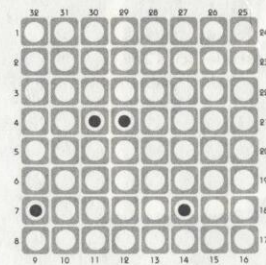
GAME 78
NORM 12



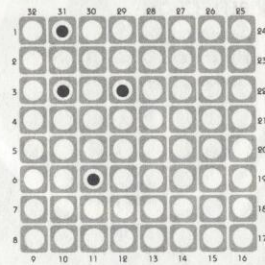
GAME 70
NORM 17



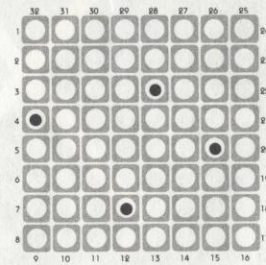
GAME 74
NORM 15



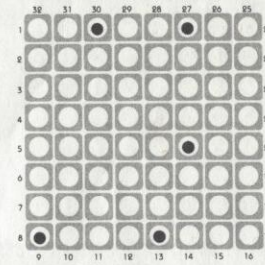
GAME 66
NORM 15



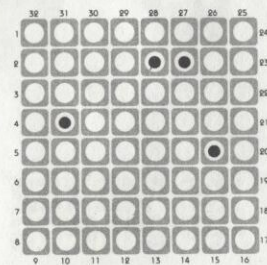
GAME 58
NORM 11



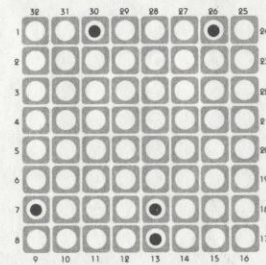
GAME 50
NORM 8



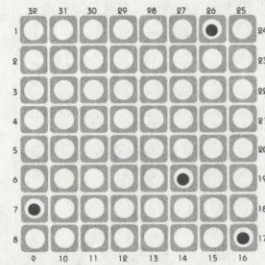
GAME 80
NORM 17



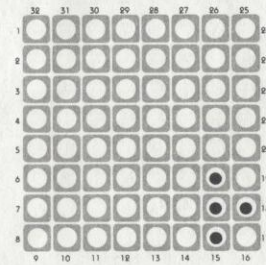
GAME 46
NORM 10



GAME 76
NORM 15

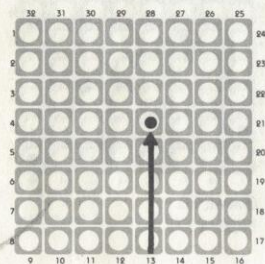


GAME 68
NORM 17

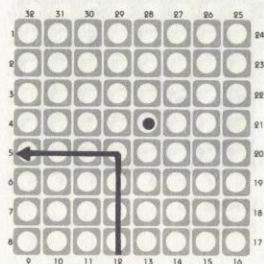


GAME 60
NORM 15

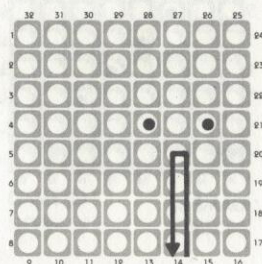
Examples of Basic Ray Movements and Proper Markers



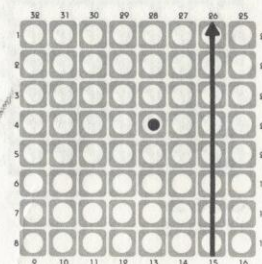
HIT
 Seeker says 13
 Hider says HIT
 Seeker places a red
 marker at 13.



DETOUR
 Seeker says 12
 Hider says 5
 Seeker places matching
 symbols at 12 and 5.

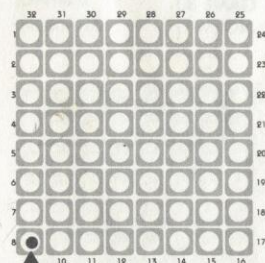


REFLECTION
 Seeker says 14
 Hider says REFLECTION
 Seeker places a yellow
 marker at 14.

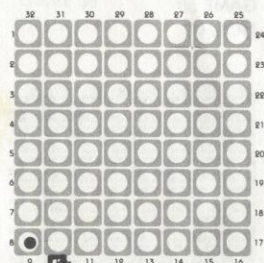


MISS
 Seeker says 15
 Hider says 26
 Seeker places matching
 symbols at 15 and 26.

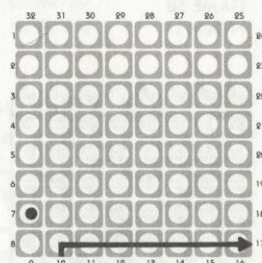
Remember these effects, too.



HIT
 Seeker says 9
 Hider says HIT
 Seeker places a red
 marker at 9.



REFLECTION
 Seeker says 10
 Hider says REFLECTION
 Seeker places a yellow
 marker at 10.



DETOUR
 Seeker says 10
 Hider says 17
 Seeker places matching
 symbols at 10 and 17.

**PARKER
 BROTHERS**

We will be happy to answer questions about this game.
 Parker Brothers, 50 Dunham Road, Beverly, Mass. 01915