Polar bears, they come in pairs.
They sit around the hole in the ice like petals around a flower.

How many polar bears do you see?
Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea?

Sample Game 1

Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea? What about the plankton?

Sample Game 1

Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea? What about the plankton?

Sample Game 1

Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea? What about the plankton?

Sample Game 1

How many polar bears do you see?

Answer: There are 6 polar bears

How many fish in the sea?

Answer: There are 7 fish in the sea
Sample Game 1

Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea? What about the plankton?

What about the plankton?

Answer: There are 28 plankton

Sample Game 2

Polar bears, they come in pairs. They sit around the hole in the ice like petals around a flower. How many polar bears do you see? How many fish in the sea? What about the plankton?

How many polar bears do you see?

Answer: There are 0 polar bears

How many fish in the sea?

Answer: There are 21 fish in the sea
“Polar Bears” as a game

Five dice are rolled and based on that role:
- You have to guess the number of polar bears
- If you get that correct, then you have to guess the number of fish in the sea.
- If you get that correct, then you have to state the number of plankton
- If you get that correct, then you win the game!

First rule:
A die role of a 1: generates 0 polar bears
A die role of a 2: generates 0 polar bears
A die role of a 3: generates 2 polar bears
A die role of a 4: generates 0 polar bears
A die role of a 5: generates 4 polar bears
A die role of a 6: generates 0 polar bears
Then add up the number of polar bears on the five dice to get the total number of polar bears. Note that each die is rolled independently, so any one number may appear just once, several times, or not at all. Once you know the rule, the game is simple.
But if you don’t know the rule, the game can be frustrating and difficult!
Polar bears, [polar opposite ends of an axis] they come in pairs. [even number of polar bears]
They sit around the hole in the ice [hole in the dice]
like petals around a flower [dice hole is in the center]
How many polar bears do you see? [use the rules above]

Second rule:
Fish appear when there are 0 polar bears and the number of fish is the number opposite the number on top of the die.
A die role of a 1: generates 0 polar bears and 6 fish
A die role of a 2: generates 0 polar bears and 5 fish
A die role of a 3: generates 2 polar bears and 0 fish
A die role of a 4: generates 0 polar bears and 3 fish
A die role of a 5: generates 4 polar bears and 0 fish
A die role of a 6: generates 0 polar bears and 1 fish

Third rule:
Fish appear when there are 0 polar bears and the number of fish is the number opposite the number on top of the die.
A die role of a 1: generates 0 polar bears and 6 fish and 0 plankton
A die role of a 2: generates 0 polar bears and 5 fish and 0 plankton
A die role of a 3: generates 2 polar bears and 0 fish and 14 plankton
A die role of a 4: generates 0 polar bears and 3 fish and 0 plankton
A die role of a 5: generates 4 polar bears and 0 fish and 14 plankton
A die role of a 6: generates 0 polar bears and 1 fish and 0 plankton
Apply the rule:

So now that we know the rule, applying it becomes simple. Look at the dice rolls for sample games 1 and 2 and count the number of plankton.

<table>
<thead>
<tr>
<th>Dice</th>
<th>Number</th>
<th>P. Bears</th>
<th>Fish</th>
<th>Plankton</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Your game should roll the dice and then ask the first question.

Sample Game 1

How many polar bears do you see?

8

If the player gets the wrong answer, the game should NOT tell the player the correct answer, but simply ask if the player wants to play again.

In this example, 6 is the correct answer.

Sorry that is not correct. Play again?

If the player gets the correct answer, the program should state that and then ask the next question.

In this example, 6 is the correct answer.

That is correct.

Just like the first question, if the player gets the wrong answer, the game should NOT tell the player the correct answer, but simply ask if the player wants to play again.

In this example, 7 is the correct answer.

How many fish in the sea?

8

Sorry that is not correct. Play again?
Sample Game 1

How many fish in the sea?

7

That is correct.

Sample Game 1

What about the plankton?

28

That is correct. You win! Play again?

Sample Game 1

Just like the first question, if the player gets the wrong answer, the game should NOT tell the player the correct answer, but simply ask if the player wants to play again.

In this example, 28 is the correct answer.

Sample Game 1

Expectations

• Users (you, the grader, the instructor) will only enter non-negative numbers (0, 1, 2, 3, …) so you should have a loop to prevent the entry of a negative number. Do not worry about other types of input: strings, characters, etc.
• When asked to “Play again?” typing “yes” will continue the game, anything else will end the game
• You do not have to keep track of games played, wins, losses, etc., but you may if you want to.