



Problem of the Week

Problem A and Solution

Fishing for Prizes

Problem

Atharv is playing a game at the school fun fair. There are 20 bowls with a different fish in each bowl. Atharv throws a ping pong ball, and if it lands in a fishbowl, then he wins the fish in that bowl. The fishbowls and the fish contained in each bowl are shown below.

betta fish	guppy	guppy	guppy	goldfish
guppy	clown fish	goldfish	betta fish	guppy
tetra	betta fish	tetra	clown fish	minnow
guppy	goldfish	tetra	guppy	betta fish

Assume that every throw lands a ball into a fishbowl and each bowl has an equal chance of being the one that the ball lands in.

- Which fish is most likely to be won by Atharv?
- Which fish is least likely to be won by Atharv?
- Which fish are equally likely to be won by Atharv?
- Is it likely that Atharv will win a clown fish?



Solution

To answer many of these questions, we should tally the number of each fish.

Type of Fish	Number
betta fish	4
guppy	7
goldfish	3
clown fish	2
tetra	3
minnow	1

We should also note that there are 20 fishbowls in total.

- (a) Since it is equally likely to land in any bowl, and since there are more bowls with a guppy than any other fish, then a guppy is the most likely fish to be won.
- (b) Since it is equally likely to land in any bowl, and since there is only 1 bowl with a minnow, then a minnow is the least likely fish to be won.
- (c) Since there are the same number of bowls that contain a goldfish as there are that contain a tetra, then it is equally likely to win a goldfish or a tetra.
- (d) Since there are 2 bowls that contain a clown fish and 18 bowls that do not contain a clown fish, it is not likely that Atharv will win a clown fish.