

Name: _____

ASM Tuition Academy

Capture Recapture

Instructions:

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
- there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all you're working out**.

Information:

- The marks for each question are shown in brackets
- use this as a guide as to how much time to spend on each question.

Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1- Amina has a large bag full of buttons. She wants to estimate the total number of buttons in the bag.

Amina takes a sample of 25 buttons from the bag. She marks each button with a small dot of paint.

Then, Amina puts the buttons back into the bag and shakes the bag well.

She takes another sample of 25 buttons. This time, 5 of the buttons have a dot of paint on them.

(a) Work out an estimate for the total number of buttons in the bag.

(2)

(b) State one assumption that Amina has made.

(1)

(Total For Question 1 is 3 marks)

Q2- David wants to estimate the number of fish in a lake.

He catches 40 fish from the lake and marks each one with a small tag.

Then, David releases the fish back into the lake.

A month later, David catches another sample of 50 fish. In this sample, 10 of the fish have tags.

(a) Work out an estimate for the total number of fish in the lake.

(2)

(b) Write down one assumption that David has made.

(1)

(Total For Question 2 is 3 marks)

Q3- Olivia wants to estimate the number of snails in her garden.

She catches a sample of 60 snails, marks them, and releases them back into the garden.

A week later, she catches a second sample of 60 snails. She finds that 12 of these snails are marked.

(a) Work out an estimate for the total number of snails in Olivia's garden.

(2)

(b) State one assumption that Olivia has made.

(1)

(Total For Question 3 is 3 marks)

Q4- Iman wants to find an estimate for the number of fish in a pond.

She catches a sample of 80 fish in the pond and marks each of these fish with a small cut on their fin. These fish are then released back into the pond.

The next day she catches a sample of 90 fish in the pond.

Iman finds that 18 of these fish have a mark on their fin.

(a) Work out an estimate for the number of fish in the pond.

(2)

(b) Write down an assumption you have made.

(1)

(Total For Question 4 is 3 marks)

Q5- Liam wants to estimate the number of rabbits in a park.

He catches a sample of 50 rabbits, tags them, and releases them back into the park.

The following week, he catches a second sample of 50 rabbits.

10 of these rabbits have been tagged.

(a) Work out an estimate for the number of rabbits in the park.

(2)

(b) Write down an assumption that Liam has made.

(1)

(Total For Question 5 is 3 marks)