CAPTURE RECAPTURE

ANSWER SHEET

Q1

(a)

(Total marked buttons / Total buttons in bag) = (Number of marked buttons in 2nd sample / Total buttons in 2nd sample)

So, (25 / x) = (5 / 25), where x is the estimated total number of buttons.

Cross-multiply: 5x = 25 * 25

5x = 625

x = 625 / 5

x = 125

Estimated total number of buttons = 125

(b)

Assumption: Amina Shaked bag so well that second sample is representative.

None of the marks rubbed off the buttons between samples

Q2-

Solution:

(a)

(Total tagged fish / Total fish in lake) = (Number of tagged fish in 2nd sample / Total fish in 2nd sample)

So, (40 / x) = (10 / 50), where x is the estimated total number of fish.

Cross-multiply: 10x = 40 * 50

10x = 2000

x = 2000 / 10

x = 200

Estimated total number of fish = 200

(b)

He assumes that the tags haven't fallen off any fish.

Q3-

(a)

(Total marked snails / Total snails in garden) = (Number of marked snails in 2nd sample / Total snails in 2nd sample)

So, (60 / x) = (12 / 60), where x is the estimated total number of snails.

Cross-multiply: 12x = 60 * 60

12x = 3600

x = 3600 / 12

x = 300

Estimated total number of snails = 300

(b)

She assumes that the marks haven't washed off the snails.

Q4

(a)

(Total marked fish / Total fish in pond) = (Number of marked fish in 2nd sample / Total fish in 2nd sample)

So, (80 / x) = (18 / 90), where x is the estimated number of fish in the pond.

Cross-multiply: 18x = 80 * 90

18x = 7200

x = 7200 / 18

x = 400

Estimated number of fish in the pond = 400

(b)

Assumption: The mark did not disappear on the fish

Q5

(a)

(Total tagged rabbits / Total rabbits in park) = : (Number of tagged rabbits in 2nd sample / Total rabbits in 2nd sample)

So, (50 / x) = (10 / 50), where x is the estimated number of rabbits in the park.

Cross-multiply: 10x = 50 * 50

10x = 2500

x = 2500 / 10

x = 250

Estimated number of rabbits in the park = 250

(b)

He also assumes that none of the tags fell off the rabbits