

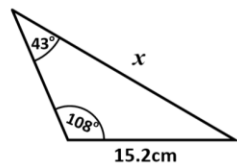
Y10 Maths Weekly Task Grid – Week commencing 15th June

This week's topic focus is **Capture Recapture**

Please complete all 4 tasks. There will be a **zoom lesson** to support with this work. (Details will be on SMHW)

Starter:

Find the size of the missing length



A fish tank has the dimensions 120cm by 70cm by 40cm given to the nearest centimetre. Calculate the **lower bound** for how many litres this fish tank can hold.

Securing Grade 7

Week 1

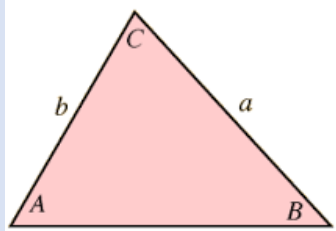
Solve

$$x^2 + 10x - 6 = 0$$

in the form $x = a \pm \sqrt{b}$ where a and b are integers

Use the iteration $x_{n+1} = 3x_n - 5$ with $x_0 = 2$ to find x_1 , x_2 and x_3 .

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$



$$\frac{c}{\sin(C)} = \frac{a}{\sin(A)} \text{ as that's what matches our question}$$

I have not taught you how to answer the first one but see if you can with the following formula and pic. You only need a pair out of the formula to make it work, not all three. Here it would be

Video on how to do it

Try to attend the zoom lesson first...

You can choose which video you want to watch to refresh your memory on how to do Capture Recapture

[Capture Recapture Video - Corbett Maths](#)

[Capture Recapture Exam Question Video - YouTube](#)

[Capture Recapture Video - YouTube \(Mr Jeffery\)](#)

Practice Questions

You can choose which questions you want to use to practice Capture Recapture. The links to the answers are also provided so you can check them when you are finished.

[Capture Recapture Questions - Corbett Maths](#)

[Capture Recapture ANSWERS - Corbett Maths](#)

[Capture Recapture Activity - NRICH](#)

[Capture Recapture - MathsPad](#)

There are also some questions on the next page from Maths Bot...

Exam Question: Higher (Calculator)

A fisherman wants to estimate the number of fish in his pond.

One day he catches 96 fish. He puts a tag on each fish then releases them.

Then next day the fisherman catches 98 fish.

40 of these fish have a tag on them.

Work out an estimate for the total number of fish in his pond.

Write down any assumptions you have made.

<p>1.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 125 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 108 fish. 38 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>	<p>2.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 106 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 195 fish. 12 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>	<p>3.0</p> <p>A gardener wants to estimate the number of snails in his garden.</p> <p>One day he catches 158 snails. He puts a tag on each snails then releases them.</p> <p>Then next day the gardener catches 69 snails. 34 of these snails have a tag on them.</p> <p>Work out an estimate for the total number of snails in his garden.</p> <p>Write down any assumptions you have made.</p>
<p>4.0</p> <p>A gardener wants to estimate the number of snails in his garden.</p> <p>One day he catches 198 snails. He puts a tag on each snails then releases them.</p> <p>Then next day the gardener catches 95 snails. 45 of these snails have a tag on them.</p> <p>Work out an estimate for the total number of snails in his garden.</p> <p>Write down any assumptions you have made.</p>	<p>5.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 196 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 71 fish. 10 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>	<p>6.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 138 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 145 fish. 28 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>
<p>7.0</p> <p>A farmer wants to estimate the number of rabbits on his farm.</p> <p>One day he catches 65 rabbits. He puts a tag on each rabbits then releases them.</p> <p>Then next day the farmer catches 185 rabbits. 54 of these rabbits have a tag on them.</p> <p>Work out an estimate for the total number of rabbits on his farm.</p> <p>Write down any assumptions you have made.</p>	<p>8.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 199 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 117 fish. 38 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>	<p>9.0</p> <p>A fisherman wants to estimate the number of fish in his pond.</p> <p>One day he catches 188 fish. He puts a tag on each fish then releases them.</p> <p>Then next day the fisherman catches 145 fish. 25 of these fish have a tag on them.</p> <p>Work out an estimate for the total number of fish in his pond.</p> <p>Write down any assumptions you have made.</p>

ANSWERS TO QUESTIONS ABOVE

<p>1.0</p> <p>Estimate that 125 of the fish make up $\frac{38}{108}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $125 \times \frac{108}{38} = 352.63$</p>	<p>2.0</p> <p>Estimate that 106 of the fish make up $\frac{12}{195}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $106 \times \frac{195}{12} = 1708.33$</p>	<p>3.0</p> <p>Estimate that 158 of the snails make up $\frac{34}{69}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $158 \times \frac{69}{34} = 317$</p>
<p>4.0</p> <p>Estimate that 198 of the snails make up $\frac{45}{95}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $198 \times \frac{95}{45} = 418$</p>	<p>5.0</p> <p>Estimate that 196 of the fish make up $\frac{10}{71}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $196 \times \frac{71}{10} = 1391.6$</p>	<p>6.0</p> <p>Estimate that 138 of the fish make up $\frac{28}{145}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $138 \times \frac{145}{28} = 705.43$</p>
<p>7.0</p> <p>Estimate that 65 of the rabbits make up $\frac{54}{185}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $65 \times \frac{185}{54} = 218.52$</p>	<p>8.0</p> <p>Estimate that 199 of the fish make up $\frac{38}{117}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $199 \times \frac{117}{38} = 608.95$</p>	<p>9.0</p> <p>Estimate that 188 of the fish make up $\frac{25}{145}$ of the population.</p> <p>Assuming the population hasn't changed over night, the estimated population is $188 \times \frac{145}{25} = 1086.4$</p>

ANSWER TO EXAM QUESTION

Estimate that 96 of the fish make up $\frac{40}{98}$ of the population.

Assuming the population hasn't changed over night, the estimated population is $96 \times \frac{98}{40} = 235.2$