CHOONG HAN JUN (COPYRIGHTED) ©

TOPIC 7: EQUATIONS & INEQUALITIES

EQUATIONS

We can solve equations by using the following operations:

- Adding the same number to both sides
- Subtracting the same number from both sides
- Multiplying both sides by the same number
- Dividing both sides by the same number

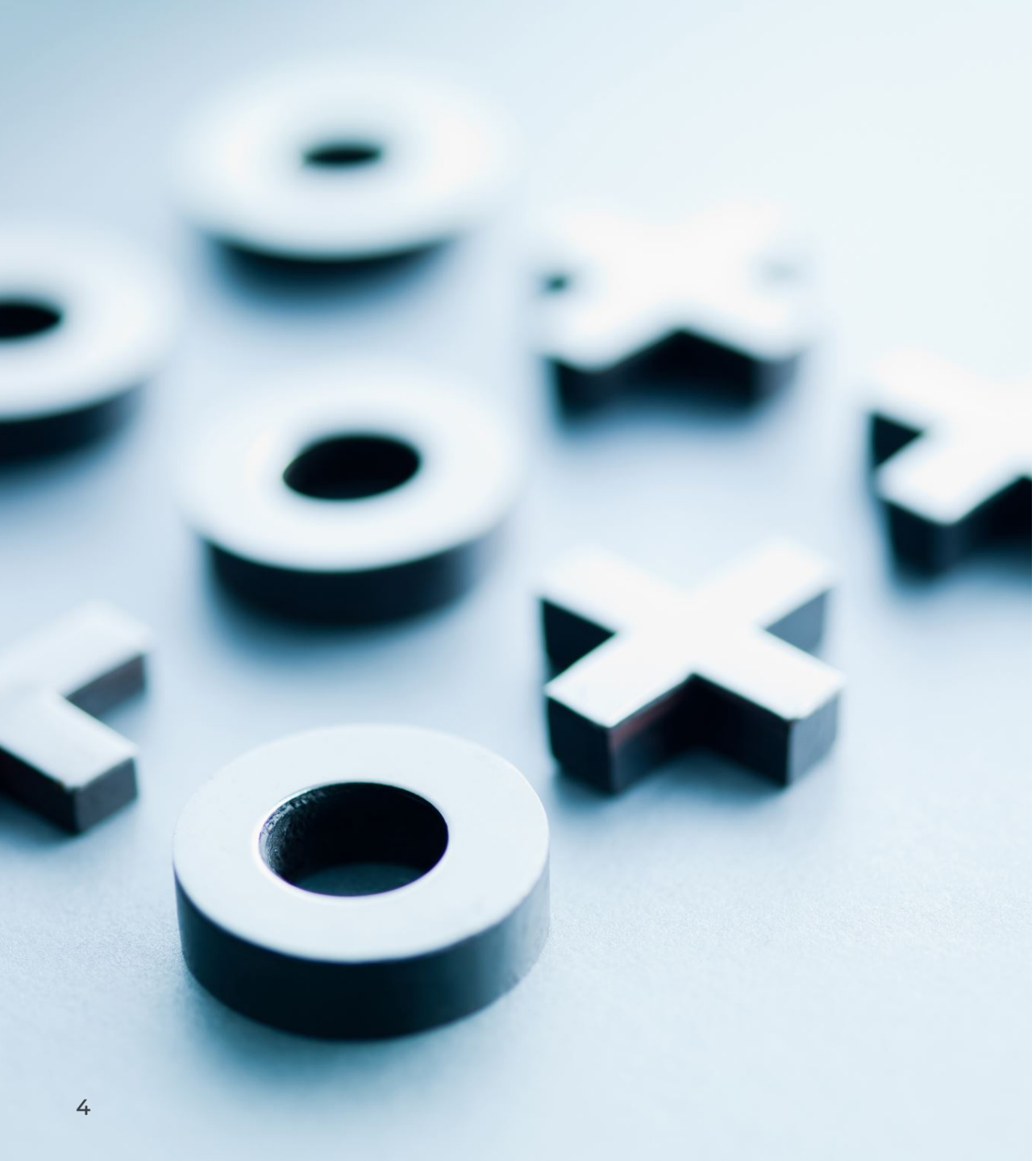
General rule
Move all constants to the RIGHT side of the equation, and all unknowns to the LEFT side of the equation

Example: Solve 0.5x – 1 = 9 – 1.5x

- Step 1: Move all unknowns to the left side
  - *0.5x + 1.5x – 1 = 9*
  - *2x – 1 = 9*
- Step 2: Add 1 to both sides
  - *2x – 1 (+1) = 9 (+1)*
  - *2x = 10*
- Step 3: Divide both sides by 2
  - $\frac{2}{2}x = \frac{10}{2}$
  - *x = 5 (answer)*

Problems relating to simple equations
Eg. The length of a rectangle is 10m more than its breadth. Its perimeter is 80m. Find its length and breadth.

- Step 1: Represent any unknown value(s) with letters
    - *"Let the length of the rectangle be x, and the breadth of the rectangle be (x-10)"*
- Step 2: Create an equation with the information provided
    - *x (length) + x (length) + (x-10) (breadth) + (x-10) (breadth) = 80 (perimeter)*
    - *2x + 2(x-10) = 80*
- Step 3: Solve the equation
    - *2x + 2x – 20 = 80 (expansion of bracket)*
    - *4x – 20 = 80 (combining the x terms)*
    - *4x = 100 (shifting constants to right side of equation)*
    - *x = 25 (dividing both sides by 4) (answer)*



Simple fractional equations

Eg. Solve $\frac{x}{3} + \frac{x-2}{4} = 3$

- Step 1: Combine the 2 separate fractions into 1 single fraction
  - *Find a common denominator:* $\frac{x}{3} = \frac{\mathbf{4x}}{\mathbf{12}}$; $\frac{x-2}{4} = \frac{\mathbf{3(x-2)}}{\mathbf{12}}$
  - $\frac{4x}{12} + \frac{3(x-2)}{12} = \frac{7x-6}{12}$
- Step 2: Cross-multiply the equation
  - $\frac{7x-6}{12} = \frac{3}{1}$
  - *7x – 6 = 3(12)*
- Step 3: Solve the equation
  - *7x – 6 = 36*
  - *7x = 42*
  - *x = 6 (answer)*

OVERMUGGED
By Tutors, For Students

For more notes & learning materials, visit: www.overmugged.com

IG handle: @overmugged

Join our telegram channel: @overmuggedlowersec

Sec 1 EOY crash course program

Professionally designed crash course to help you get a **condensed revision** before your EOY exams!

The **3 hour session** focuses on going through **key concepts** and **identifying commonly tested questions!**

Our **specialist tutors** will also impart valuable **exam pointers and tips** to help you maximise your preparation and ace your upcoming national exam!

The crash courses will begin in **June 2021 and last till Oct 2021**.

Pre-register now on our website and secure your slots!

Need help?

CHOONG HAN JUN

97839558
(Whatsapp)

@hanjunn
(telegram username)