

MY FORMULAE

Math - The 3 Golden Rules

As you'll remember from the video, there are 3 Golden Rules you need to follow...

1. Work out what **equations/formulas/problems** you need to know
2. Make sure you understand the **steps** involved for each kind of problem/equation
3. Get awesome at **recognizing** each kind of problem in any context

Your Task

Your task is to use the templates on pages 3 and 4.

1. On these pages write down all of the different **equations/formulas/problems** you need to know for math.
2. Follow our examples on page 2 to see how to use the templates.

See how we break down each type of problem/equation into **steps**? Once you understand the steps involved in solving a type of problem, you should find solving it really easy!
3. Depending on how far through the school year you are, you might have to add new formulas as you learn them.
4. Print page 3 out as many times as you need! Use page 4 for bigger problems.

Why so important?

This task will take a little bit of time and effort on your part... But the time and stress you will save by doing it properly will be **gigantic!**

If you want to get good grades this year, complete these templates **NOW!** It will be 100% worth your while.

Other subjects?

We use math problems in the examples on page 2, but the 3 Golden Rules can actually be applied to **any subject** that uses numbers or equations or formulas. You could use the templates for chemistry, physics, and accounting too!

EXAMPLE

SUBJECT Math

EQUATION/FORMULA/PROBLEM:

Expand & simplify: $(x + a)(x + b)$

STEPS (FOIL: First, Outside, Inside, Last)

1. First: x times $x = x^2$
2. Outside: x times $b = bx$
3. Inside: a times $x = ax$
4. Last: a times $b = ab$
5. Put it all together: $x^2 + bx + ax + ab$
6. Simplify: $x^2 + (b+a)x + ab$

EXAMPLE

Expand & simplify: $(x + 8)(x + 3)$

1. x times $x = x^2$
2. x times $3 = 3x$
3. 8 times $x = 8x$
4. 8 times $3 = 24$
5. Altogether: $x^2 + 3x + 8x + 24$
6. Simplify: $x^2 + 11x + 24$

VARIATION EXAMPLE

Expand & simplify: $2x(x - 6)(x + 4)$

1. Expand first bracket: $2x$ times $x = 2x^2$
 $2x$ times $-6 = -12x$
2. Problem becomes: $(2x^2 - 12x)(x + 4)$
3. First: $2x^2$ times $x = 2x^3$
4. Outside: $2x^2$ times $4 = 8x^2$
5. Inside: $-12x$ times $x = -12x^2$
6. Last: $-12x$ times $4 = -48x$
7. Altogether: $2x^3 + 8x^2 - 12x^2 - 48x$
8. Simplify: $2x^3 - 4x^2 - 48x$

The templates on pages 3 & 4 are to help you get started, to help you get organized, and to help you complete practice problems.

Once you get competent at doing problems and solving equations like this you'll be able to do some of the steps in your head.

But for starters, make sure you write every step down **on its own line**. This will stop you making silly mistakes!

Other formulas/equations/problems you might recognise:

- * Factorize $ax^2 + bx + c$
- * Linear equation: $y = ax + c$
- * Net income = income - expenses
- * Pythagoras: $a^2 + b^2 = c^2$
- * Kinetic energy: $E_k = \frac{1}{2}mv^2$
- * Trigonometry: $\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$
- * Solve for x : $(x - a)(x + b) = 0$
- * $A_{(\text{circle})} = \pi r^2$

The variation example could be anything that still involves the same fundamental principle or formula or equation. It could be a word problem.

Problems like these are generally harder and worth more marks, but they're actually easy if you can recognize what steps are involved!

MY FORMULAE

Subject:

equation/formula/problem:

.....

Steps:

Example:

Variation Example:

Subject:

equation/formula/problem:

.....

Steps:

Example:

Variation Example:

MY FORMULAE

Subject:

equation/formula/problem:

.....

Steps:

example:

Variation example: