KSSM Semakan SPM Form 4 SPM Tingkatan 4 Mathmatics Matematik Video Book Free Trial

by 冰姐讲数 MathTalk, Afterclass

您接下来所看见的所有内容都附带讲解视频， 学生完完全全可以依据自己的进度学习。这不是活动本也不是作业。是AddMath最完整课程，等于一本有电影的课本。

每个单元概念的讲解，

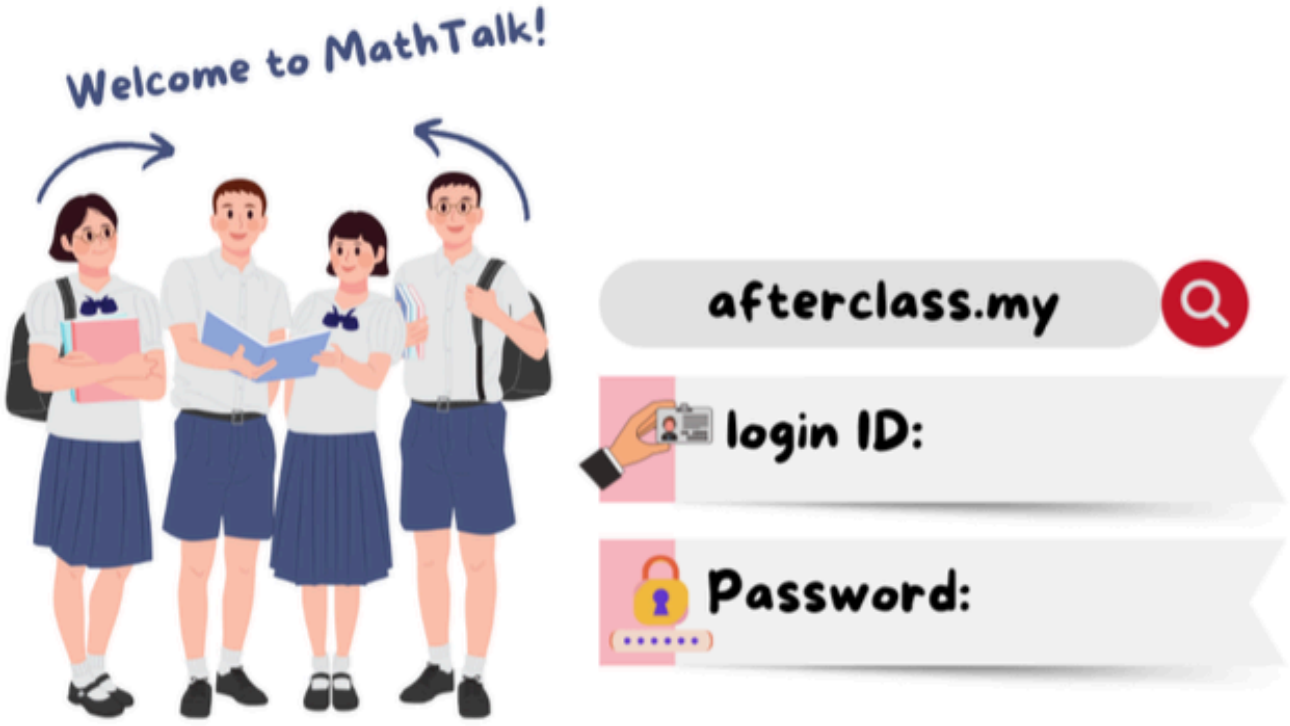
每题习题的讲解分析，

及历届考题的分析。

MathTalk 课程特点

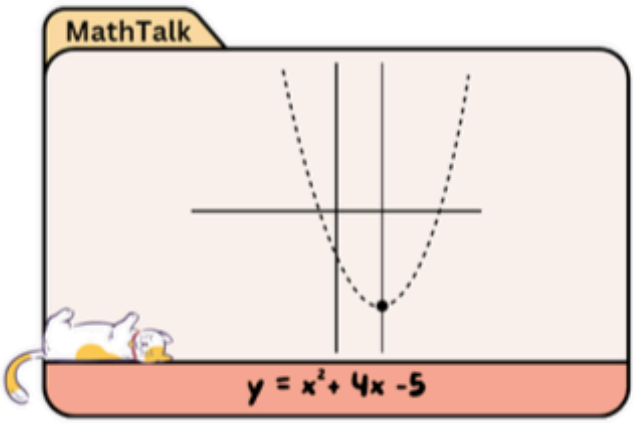
❗ 课程内容依据KSSR Semakan 最新课程编写。

Contents *Kandungan*



❗每进入一个新的单元，都会先让学生明白概念。而不是直接讲Formula那种。

Skill 3 IMPORTANT



- Roots
- Minimum point
- Minimum value
- Axis of symmetry
- y-intercept
- x-intercept

Skill 4a Axes of Symmetry *Paksi simetri*

$y = x^2 - 4x + 3$	$y = x^2 + 4x - 5$	$y = x^2 + 6x + 8$

$y = x^2 - 5x$	$y = x^2 + 8x$	$y = x^2 - 4$

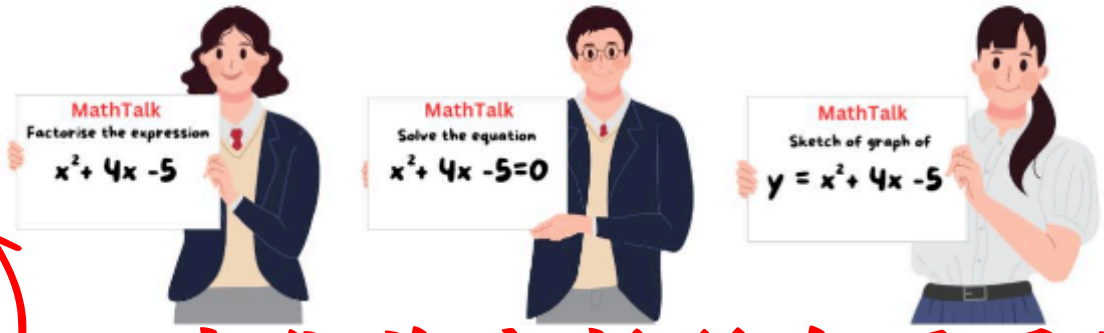
BingJie's message: We also can use this formula $x = -\frac{b}{2a}$ to get axis of symmetry. *Kita juga boleh menggunakan formula* $x = -\frac{b}{2a}$ *untuk mendapatkan paksi simetri.*

❗分析容易困惑的点。

Skill 5 Methods of finding roots *Cara-cara untuk mendapatkan punca-punca*

$x^2 + 2x - 8 = 0$		
By factorization *Dengan pemfaktoran*	By formula *Dengan formula*	By calculator *Dengan kalkulator*
	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

Skill 6



❗我们将分析所有不同的情况，同学可以鸟瞰式了解完整概念。

Skill 7 Relation between graph of quadratic and point *Hubungan antara graf kuadratik dengan titik*

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Tutorial 1 Paper 1

1. Calculate the value of c if the graph of the quadratic function $f(x) = 4(x-5)(x-3) - c$ passes through point $P(2,-3)$.
Hitung nilai c jika graf fungsi kuadratik $f(x) = 4(x-5)(x-3) - c$ melalui titik $P(2,-3)$.
A 15 B 9 C -9 D -15

2. $5 - 2(3-y)^2 =$
A $5 + y^2$ B $-13 + 2y^2$
C $9 - 6y + y^2$ D $-13 + 12y - 2y^2$

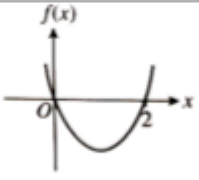
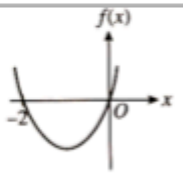
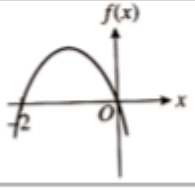
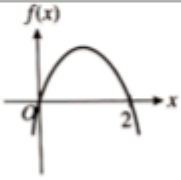
3. Which of the following is **not** a quadratic expression in one variable?
*Antara berikut, yang manakah **bukan** unkapan kuadratik dalam satu pemboleh ubah?*
A $\frac{5}{6}y^2 - 5$ B $5x^2 + x^{-2}$
C $p(3-2p)$ D $-\frac{1}{3}k^2 + 4k$

4. Solve the following quadratic equation $4x(2x-1) - x = 3$:
Selesaikan persamaan kuadratik berikut $4x(2x-1) - x = 3$:
A $x = -1, x = \frac{3}{8}$ B $x = -\frac{3}{4}, x = \frac{1}{3}$
C $x = -\frac{1}{2}$, $x = \frac{3}{4}$ D $x = -\frac{3}{8}, x = 1$

5. Express the quadratic equation $\frac{4}{2y-1} = 7 - \frac{3}{y}$ in general form.
Ungkapkan persamaan kuadratik $\frac{4}{2y-1} = 7 - \frac{3}{y}$ dalam bentuk am.
A $14y^2 + 17y - 3 = 0$ B $-14y^2 + 17y + 3 = 0$
C $14y^2 - 17y - 3 = 0$ D $14y^2 - 17y + 3 = 0$

6. Find the roots of the quadratic equation $(4m-1)^2 = 4m^2$.
Cari punca-punca bagi persamaan kuadratik $(4m-1)^2 = 4m^2$.
A $m = -\frac{1}{2}, m = -\frac{1}{6}$ B $m = -\frac{1}{2}, m = \frac{1}{6}$
C $m = -\frac{1}{6}, m = \frac{1}{2}$ D $m = \frac{1}{6}, m = \frac{1}{2}$

7. Which graph represents $f(x) = 2x - x^2$?
Graf manakah yang mewakili $f(x) = 2x - x^2$?

A	B	C	D
			

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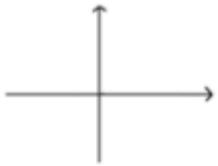
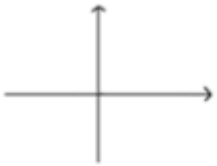
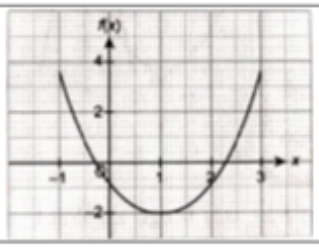
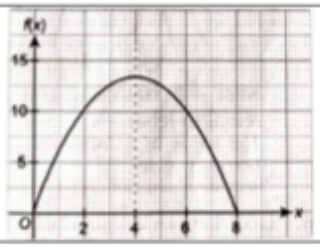
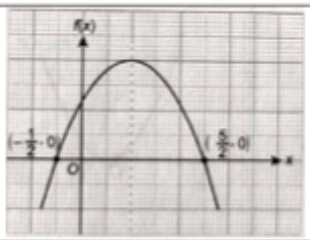
Skill 4b

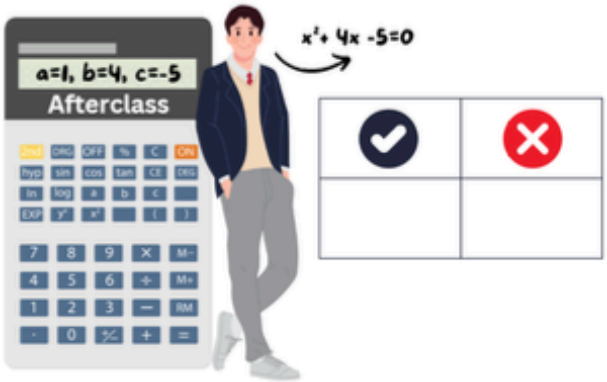
$y = x + 4$	$y = 5$	$x = 3$
		

Exercise 3

Draw the axes of symmetry and state equation of axes of symmetry of each of the following quadratic functions. *Lukis paksi simetri dan nyatakan persamaan paksi simetri bagi setiap fungsi kuadratik yang berikut.*

	1	2	3
Graph *graf*			
Equation of axes of symmetry *Persamaan paksi simetri*			

Calculator corner 1



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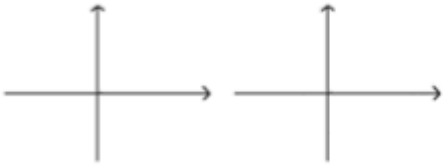
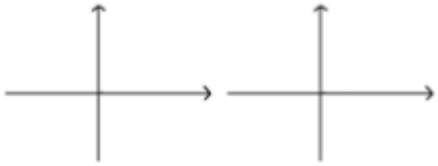
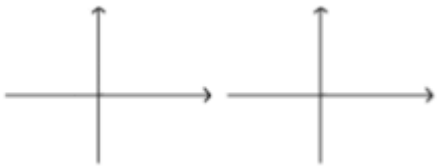
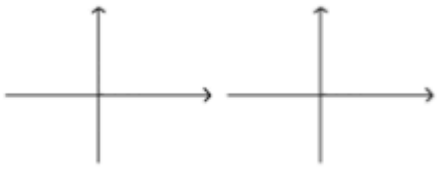
Note 5

Effect of changing the value of a, b and c on the graph of quadratic functions.

Kesan perubahan nilai a, b dan c ke atas fungsi kuadratik.

1	$f(x) = \boldsymbol{a}x^2 + bx + c$	$f(x) = 3x^2 \rightarrow f(x) = 5x^2$ 	$f(x) = -7x^2 \rightarrow f(x) = -3x^2$ 
2	$f(x) = ax^2 + \boldsymbol{b}x + c$	$f(x) = x^2 \rightarrow f(x) = x^2 + 5x$ 	$f(x) = x^2 \rightarrow f(x) = x^2 - 5x$ 
		$f(x) = -x^2 \rightarrow f(x) = -x^2 + 5x$ 	$f(x) = -x^2 \rightarrow f(x) = -x^2 - 5x$ 
3	$f(x) = ax^2 + bx + \boldsymbol{c}$	$f(x) = x^2 \rightarrow f(x) = x^2 + 3$ 	$f(x) = x^2 \rightarrow f(x) = x^2 - 3$ 
		$f(x) = -x^2 \rightarrow f(x) = -x^2 + 3$ 	$f(x) = -x^2 \rightarrow f(x) = -x^2 - 3$ 

为什么MathTalk课程更适合大家?

事半功倍

每个家长都知道，现在学生的活动特别多，回到家通常都十分疲倦，还需要上补习班的话，大家觉得孩子可以吸收多少呢？MathTalk 课程的优点在于孩子可以足够休息后，在精神最佳的状态依据自己的进度学习，效果肯定大大提升。

适合成绩不理想的同学

对于基础不好，还是学习能力比较慢，需要时间慢慢理解的同学，大家认为补习班的老师是否会为了一名学生而拖慢整个进度吗？前面单元没学到的课程又如何呢？MathTalk 的课程是一个题目一个视频，学生哪里不会， 就学哪里， 学到会为止。不用紧张， 不用压力。

更适合成绩优越的同学

数学成绩比较优越的你，会比较希望在补习班中浪费时间听已经懂的题目，还是希望可以把握时间，尽量学习更多不同的题型，如果是后者，就只有MathTalk适合你。

10%的费用，10倍的效果

MathTalk 课程就等于和冰姐进行一对一的私人家教。课程不是平常上课补习班的录的视频，是冰姐特别一题一个讲解，完整却仔细的讲解每道题目和概念。但学费却只需不到补习费的十分之一。

每天进步1%

每天只需花几分钟的时间，学习数学课程。养成每天进步1%的好习惯，半年后你肯定被自己的改变吓一跳。

免费培训班

所有购买 MathTalk课程的同学都可免费获得全年不定期的现场直播培训班，或者以半价的优惠价出席特训班。同学可以和冰姐互动，同时冰姐也可以帮忙解决学生的问题。

如何登入 Afterclass 网站开始学习

请登入到MathTalk, Afterclass 网站

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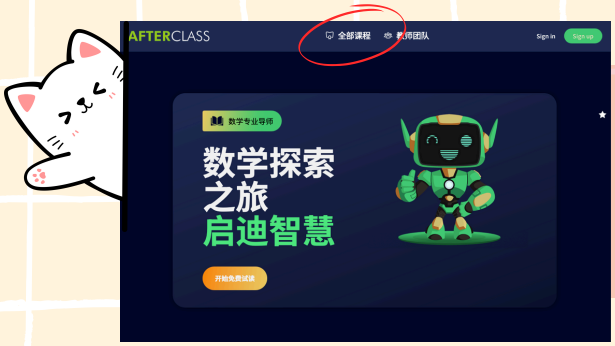
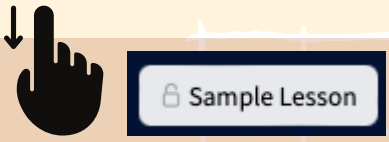


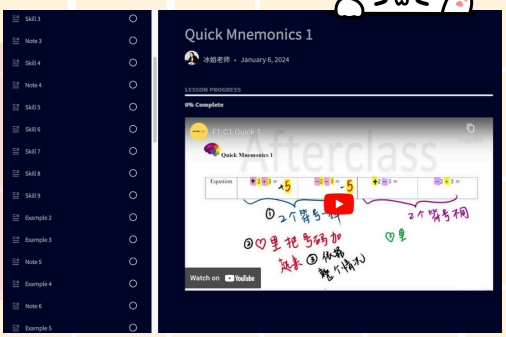
点击全部课程

选择您想学习的科目

Scroll Down 至Sample Lesson



选择您想观看的视频



如何有效使用MathTalk 课程学习

步驟 1

每当开始学习新的单元，学生首选必须通过Concept 和 Note 对即将学习的概念有初步的了解。

步驟 2

通过观看视频先从 Example 开始学习基本的题目和作答方法。

步驟 3

明白基本概念后，在先不看视频的情况下自己尝试Exercise题目，此类题目是针对Example所教的方法进行训练。完成后，并下载 PDF 检查答案，答案错的话再观察视频讲解。

步驟 4

重复步骤3并完成每个 Exercise，Skill 和 Bonus 的讲解绝对不可以错过，因为这些都是非常有用的技巧。

步驟 5

当你完成所有的 Exercise，基本上就已经是把整个单元学完了。

步驟 6

最后步骤，也是最重要的，就是 Tutorial 题目，Tutorial 多数为历届考题，考试的题型。先自行尝试，如果答案再观看视频。所有Tutorial 必须完成。

前言

欢迎大家来到马来西亚 Form 4 数学的学习世界， 也是新的一个里程碑。Form 4 数学可说是 SPM 考试中相对比较容易获得 A 的科目。然而，很多同学却在这个阶段面临了不小的挑战。这其中的主要原因是考试中的许多题目都建立在 Form 1、Form 2 和 Form 3 的基础知识上。如果基础不牢固，Form 4 的内容就会显得困难重重。

在 20 多年的教学中，冰姐深刻体会到，夯实基础对于学习数学的重要性。因此，在 MathTalk 课程中，冰姐将针对那些需要基础知识的题目进行详细的重新讲解。这样，同学们不仅能更好地理解当前的知识点，也不必浪费时间去翻找以前学过的公式和概念。这种方法肯定可以大大提高了学习效率，

无论你目前的成绩如何，MathTalk 都是帮助你进步的最佳选择。

关于冰姐：

- 一个可以陪你聊心事的数学老师。
- 1口气亲自录制了18本视频书，目前仍在进行中。。。
- 曾经和你一样，数学也不及格，甚至可能比现在你的成绩更差，所以冰姐完全可以理解你的心情和学业上的需求。
- 5只毛孩的仆人，并承诺爱护他们一辈子。
- 以刚刚好过的分数毕业🎓于马来西亚理科大学荣誉学士 Bsc. (Hons) in Physics, USM。
- 你可以Jio她一起打Dota的数学老师。
- 曾经教过的学生包括: 幼儿园学生，小学生，中学生（马来学生、印度学生，华人学生），独中生，IGCSE 考生，奥数培训生，过动儿学生，学习障碍学生，因为错过求学年龄而再次捡起书本的成年人，大学学院生，国际学生包括： 迪拜学生，阿布扎比学生，老挝学生，中国学生，澳洲学生，马尔代夫学生等，接触的学生多了，教学经验自然就丰富了。
- 不要以为冰姐只是补习老师， 冰姐也是师训Diploma 🎓 CGPA 3.9 毕业生及前独中老师。
- 不用好奇为什么冰姐懂这么多特别多概念和教学技巧，冰姐的师父就是这么多年以来教过的学生，他们向冰姐发问问题，冰姐为了让学生真正明白而不断地思考再思考他们的问题，就好像武功练久了， 自然就有《独门秘籍》。因此，冰姐教的技巧绝对是独一无二， 也是最有效的。

江湖路上高手众多，冰姐的数学肯定不是最强的那个，但可以肯定告诉你，冰姐却是最热爱数学的那个，希望进步的路上有你！

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Concept 1

$y=(x+1)(x-5)$

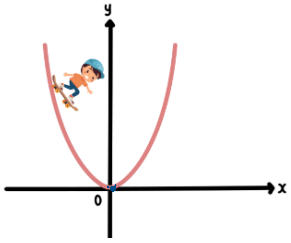
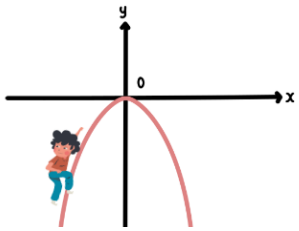
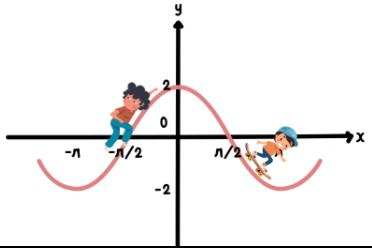
Note 1

Have you ever sketched the movement of a ball kicked by a football player, as shown in the picture? *Adakah anda pernah melukis pergerakan bola yang ditendang oleh seorang pemain bola sepak, seperti yang terlihat dalam gambar?*

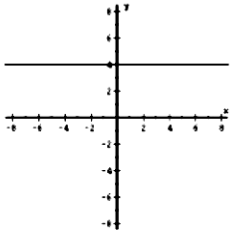
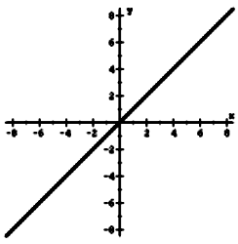
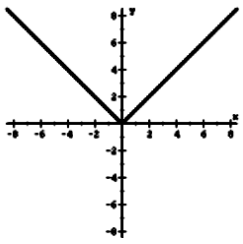
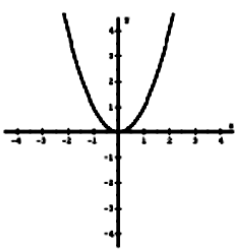
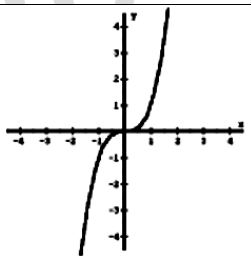
The shape of this movement is a parabola. *Bentuk pergerakan ini adalah parabola.*
A quadratic expression is a second-degree polynomial expression in a single variable, with the general form:
Ungkapan kuadratik adalah ungkapan polinomial darjah kedua dalam pembolehubah tunggal, dengan bentuk umum: $ax^2 + bx + c$

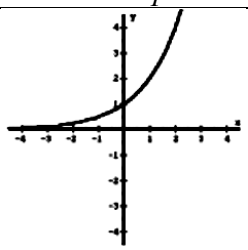
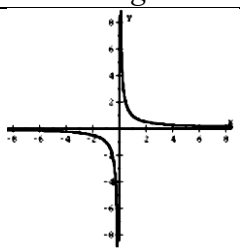
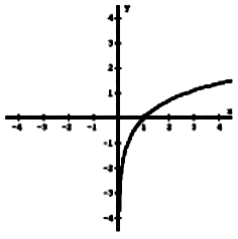
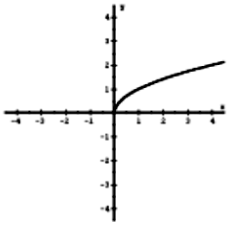
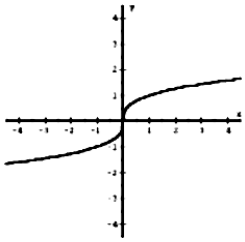
Quadratic equations are fundamental in algebra and have applications in various fields, including physics, engineering, and computer science. *Persamaan kuadratik adalah asas dalam algebra dan mempunyai aplikasi dalam pelbagai bidang, termasuk fizik, kejuruteraan, dan sains komputer.*

Note 2 IMPORTANT

Quadratic *Kuadratik*		Non Quadratic *Bukan Kuadratik*
x^2	$-x^2$	
		
Minimum point *Titik minimum*	Maximum point *Titik maksimum*	It can be few turning points or no turning point T*erdapat beberapa titik pusingan atau tiada titik pusingan*
Always only one turning point in Quadratic. *Sentiasa terdapat satu titik pusingan sahaja dalam Kuadratik.*		

Skill 1

Constant *Pemalar*	Linear *Linear*	Absolute Value *Nilai mutlak*	Quadratic *Kuadratik*	Cubic *Kubik*
				
$f(x) = a$	$f(x) = x$	$f(x) = \|x\|$	$f(x) = x^2$	$f(x) = x^3$

Exponential *Bentuk eksponen*	Reciprocal *Salingan*	Logarithmic *Logaritma*	Square Root *Punca kuasa dua*	Cube Root *Punca kuasa tiga*
				
$f(x) = a^x$	$f(x) = \frac{1}{x}$	$f(x) = log_a x$	$f(x) = \sqrt{x}$	$f(x) = \sqrt[3]{x}$

Did you know 1 [No explanation video provided in this part]

Al-Khawarizmi (780AD-850AD), recognized as the Father of Algebra, pioneered several fundamental mathematical concepts. His groundbreaking contributions in algebra showcased exceptional work, where he played a crucial role in introducing a systematic and logical approach to solving both linear and quadratic equations.

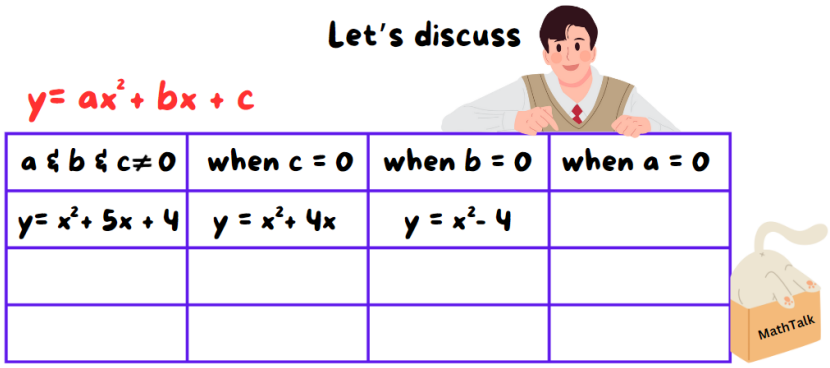
Al-Khawarizmi (780AD-850AD), yang terkenal sebagai Bapa Algebra, menjadi perintis beberapa konsep matematik yang mendasar. Usahanya dalam algebra sangat luar biasa, di mana beliau bertanggungjawab memperkenalkan pendekatan sistematik dan logik dalam menyelesaikan persamaan linear dan kuadratik.

Try Me 1

$y = x^2 + 4$	$y = x + 4$
When *apabila* $x = -2$,	When *apabila* $x = -2$,
When *apabila* $x = -1$,	When *apabila* $x = -1$,
When *apabila* $x = 0$,	When *apabila* $x = 0$,
When *apabila* $x = 1$,	When *apabila* $x = 1$,
When *apabila* $x = 2$,	When *apabila* $x = 2$,

BingJie's message: A quadratic equation/ expression in one variable is an expression whereby the highest power for the variable is two. *Kuasa tertinggi bagi pembolehubah persamaan/ ungkapan kuadratik dalam satu pembolehubah adalah dua.*

Discussion 1



Exercise 1

Mark (✓) for the quadratic expression in one variable and (✗) if not. Hence, give your reason. BASIC
Tandakan (✓) bagi ungkapan kuadratik dalam satu pemboleh ubah dan (✗) jika bukan. Kemudian, berikan sebab anda.

	Expression *Ungkapan*	(✓) or *atau* (✗)	Reason *Sebab*
1	$x^2 + 5$		
2	$4x^2 - y$		
3	$\frac{x^2 + 4x - 8}{x}$		
4	$(y + 2)(y - 3)$		
5	$\frac{m^2 + 5m + 9}{2}$		
6	$pq^2 - p - 5$		
7	$\frac{n^2 + 6n}{n - 1}$		
8	$5x^3 - 5x^2$		
9	$-20a^2$		
10	$3x + 6$		

Skill 2 Easy Confused IMPORTANT

Quadratic expression Ungkapan Kuadratik	Quadratic equation Persamaan Kuadratik
	

Exercise 2 Complete the table below for each of the following quadratic functions. BASIC
Lengkapkan jadual di bawah bagi setiap fungsi kuadratik berikut.

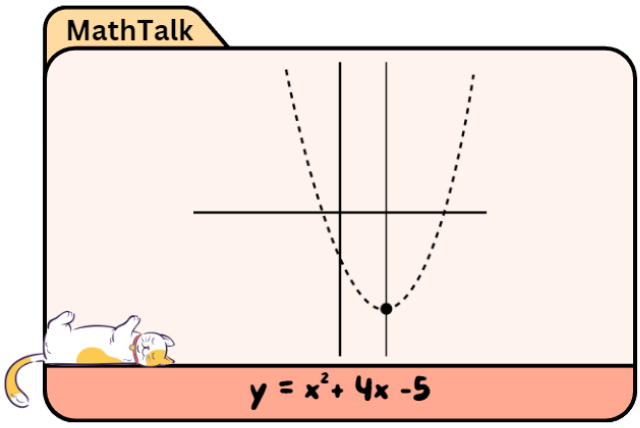
	Quadratic Function *Fungsi Kuadratik*	a	b	c	Shape of the graph *Bentuk graf*	Maximum point or Minimum point *Titik Maksimum* atau *Titik Minimum*
1	$f(x) = 3x^2 + x - 5$					
2	$f(x) = -x^2 + 6$					
3	$f(x) = 2x^2 - 4x$					
4	$f(x) = -10x^2$					
5	$f(x) = 3x^{-2} + 2x - 4$					

Note 3 Axes of Symmetry *Paksi simetri*

The axis of symmetry of the graph of a quadratic function is parallel to the y-axis and passes through the maximum or minimum point. *Paksi simetri bagi graf fungsi kuadratik adalah selari dengan paksi-y dan melalui titik maksimum atau titik minimum.*

$f(x) = x^2 - 12x + 20$	$f(x) = x^2 + 8x + 7$
$f(x) = x^2 + 2x - 15$	$f(x) = -x^2 - 4x + 12$

Skill 3 IMPORTANT



- Roots
- Minimum point
- Minimum value
- Axis of symmetry
- y-intercept
- x-intercept

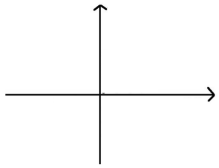
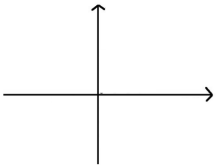
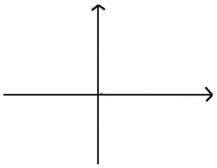
Skill 4a Axes of Symmetry *Paksi simetri*

$y = x^2 - 4x + 3$	$y = x^2 + 4x - 5$	$y = x^2 + 6x + 8$

$y = x^2 - 5x$	$y = x^2 + 8x$	$y = x^2 - 4$

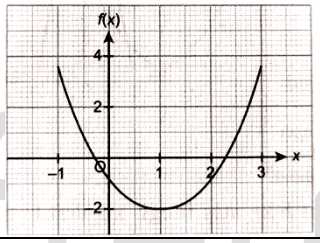
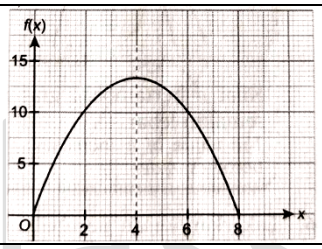
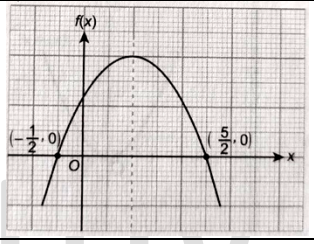
BingJie's message: We also can use this formula $x = -\frac{b}{2a}$ to get axis of symmetry. *Kita juga boleh menggunakan formula* $x = -\frac{b}{2a}$ *untuk mendapatkan paksi simetri.*

Skill 4b

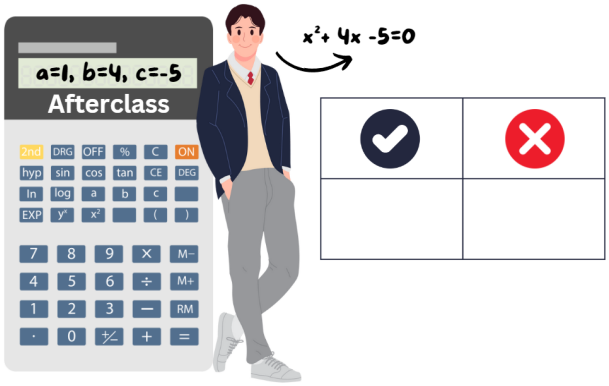
$y = x + 4$	$y = 5$	$x = 3$
		

Exercise 3

Draw the axes of symmetry and state equation of axes of symmetry of each of the following quadratic functions. *Lukis paksi simetri dan nyatakan persamaan paksi simetri bagi setiap fungsi kuadratik yang berikut.*

	1	2	3
Graph *graf*			
Equation of axes of symmetry *Persamaan paksi simetri*			

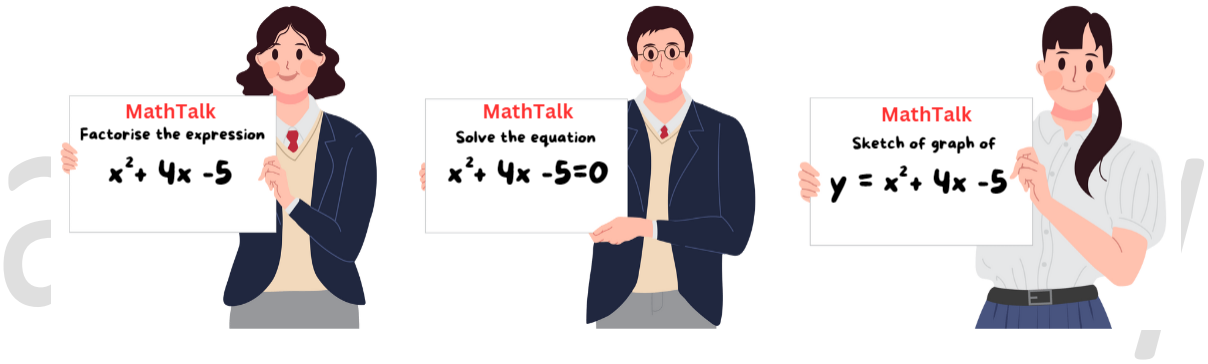
Calculator corner 1



Skill 5 Methods of finding roots *Cara-cara untuk mendapatkan punca-punca* BASIC

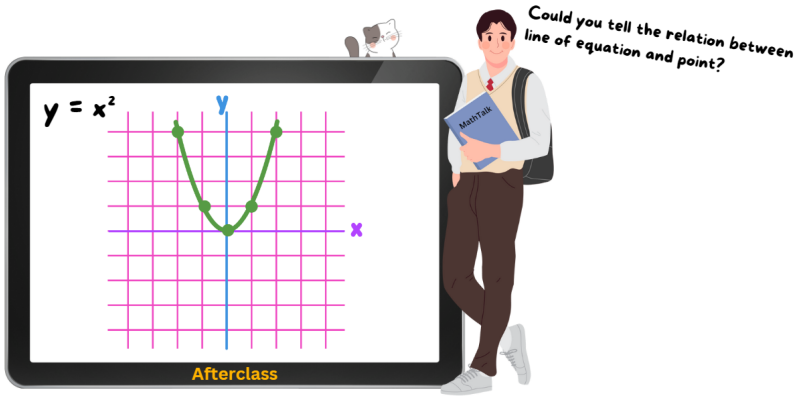
$x^2 + 2x - 8 = 0$		
By factorization *Dengan pemfaktoran*	By formula *Dengan formula*	By calculator *Dengan kalkulator*
	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

Skill 6 Easy Confused IMPORTANT IMPORTANT Only in MathTalk



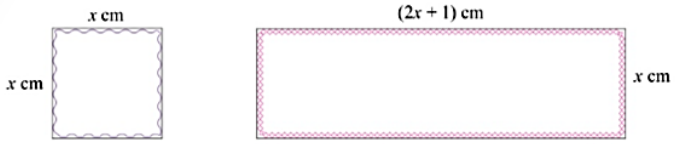
Skill 7 Relation between graph of quadratic and *points Hubungan antara graf Kuadratik dengan titik*

IMPORTANT



Example 1 KSSM Semakan School Text Book

Mr. Ganesan plans to make two different types of card for Mathematics Club activities. The measurements of the cards are shown in the diagram below. *Encik Ganesan merancang untuk membuat dua jenis kad berbeza untuk aktiviti Kelab Matematik. Ukuran kad tersebut ditunjukkan dalam gambarajah di bawah.*



a. Form a quadratic expression for the total area of the two cards, A cm^2, in terms of x. *Bentukkan satu ungkapan kuadratik bagi jumlah luas permukaan bagi dua kad, A cm^2, dalam sebutan x.* [Ans: $A = 3x^2 + x$]

b. The total area of two cards, is 114cm^2. Form a quadratic equation in terms of x. *Jumlah luas permukaan dua kad ialah 114cm^2. Bentukkan persamaan kuadratik dalam sebutan x.* [Ans: $x = 6$]

Exercise 4

Calculate the value of c in each of the following quadratic function the passes through point P.
Hitung nilai c dalam setiap fungsi kuadratik berikut yang melalui titik P.

1	2	3
$f(x) = x^2 + 3x - c$; $P(-2,6)$	$f(x) = 3x^2 + c$; $P(2,-9)$	$f(x) = -2x^2 + 5x - c$; $P(4,-5)$

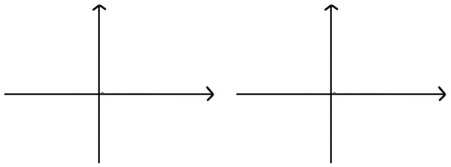
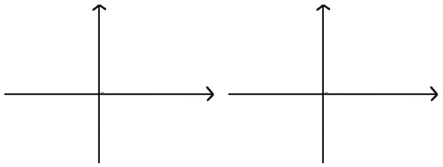
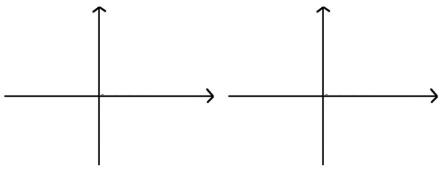
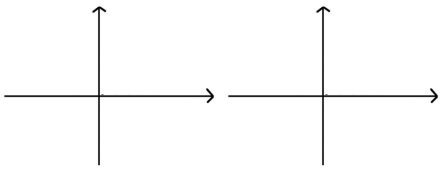
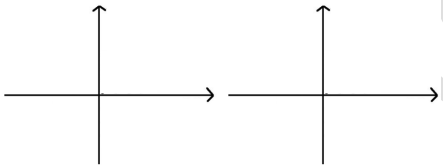
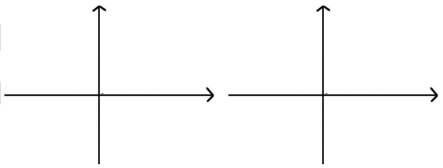
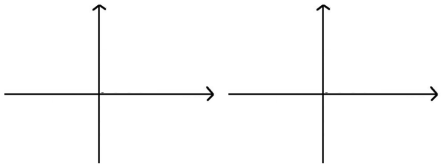
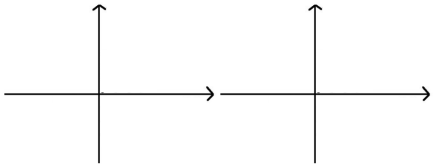
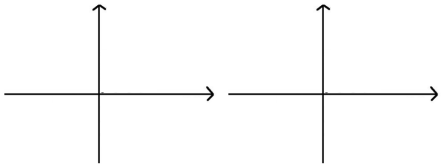
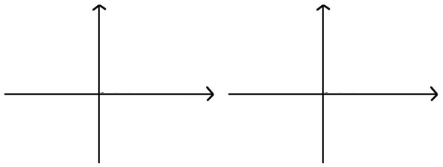
Note 4 General Form *Bentuk am*

Convert all the equations to general form. *Tukarkan semua persamaan kepada bentuk am.* Common Basic Needed

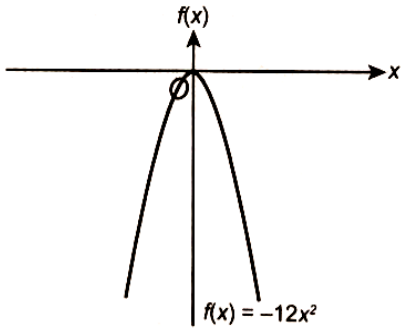
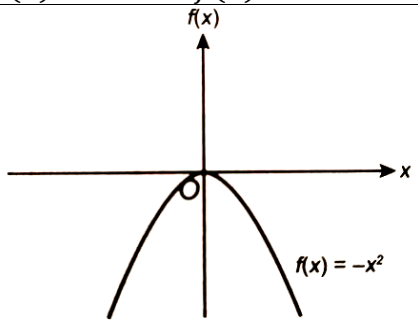
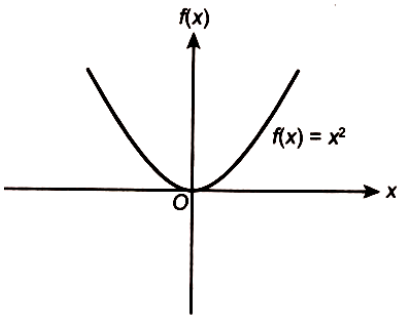
	Equation *Persamaan*	General form *Bentuk am*
1	$x^2 + 3x = -9$	
2	$\frac{1}{2}x = \frac{3}{4}x^2$	
3	$4x^2 = 25$	

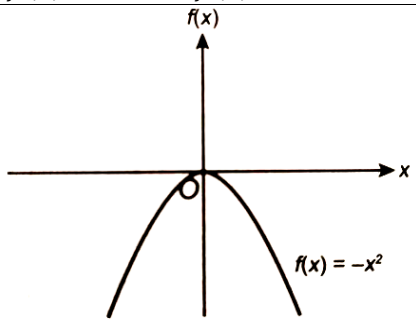
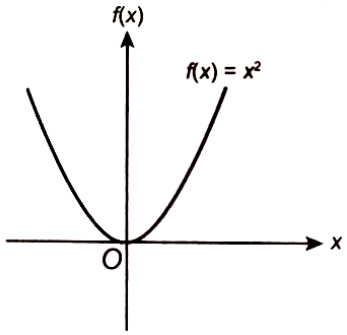
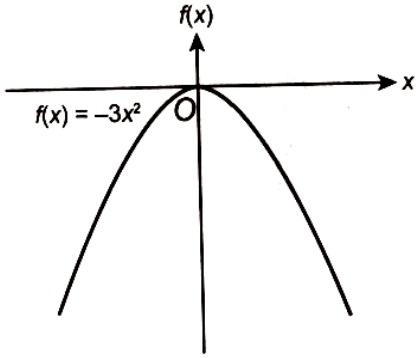
Note 5

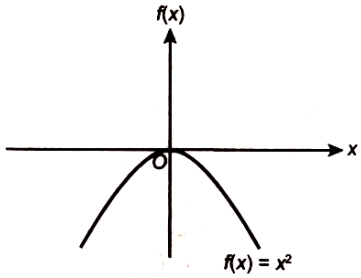
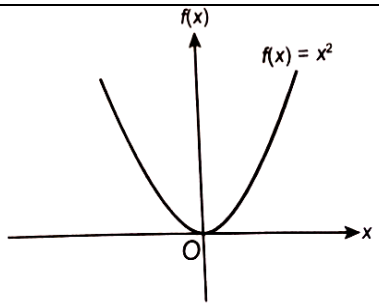
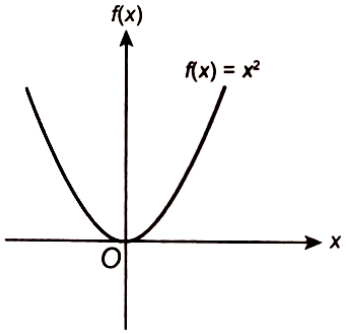
Effect of changing the value of a, b and c on the graph of quadratic functions.
Kesan perubahan nilai a, b dan c ke atas fungsi kuadratik.

1	$f(x) = \boldsymbol{a}x^2 + bx + c$	$f(x) = 3x^2 \rightarrow f(x) = 5x^2$ 	$f(x) = -7x^2 \rightarrow f(x) = -3x^2$ 
2	$f(x) = ax^2 + \boldsymbol{b}x + c$	$f(x) = x^2 \rightarrow f(x) = x^2 + 5x$ 	$f(x) = x^2 \rightarrow f(x) = x^2 - 5x$ 
		$f(x) = -x^2 \rightarrow f(x) = -x^2 + 5x$ 	$f(x) = -x^2 \rightarrow f(x) = -x^2 - 5x$ 
3	$f(x) = ax^2 + bx + \boldsymbol{c}$	$f(x) = x^2 \rightarrow f(x) = x^2 + 3$ 	$f(x) = x^2 \rightarrow f(x) = x^2 - 3$ 
		$f(x) = -x^2 \rightarrow f(x) = -x^2 + 3$ 	$f(x) = -x^2 \rightarrow f(x) = -x^2 - 3$ 

Exercise 5 IMPORTANT

1	2	3
$f(x) = -12x^2 \rightarrow f(x) = -9x^2$	$f(x) = -x^2 \rightarrow f(x) = -x^2 + 6x$	$f(x) = x^2 \rightarrow f(x) = x^2 + 7$
		

4	5	6
$f(x) = -x^2 \rightarrow f(x) = -x^2 - 5x$	$f(x) = x^2 \rightarrow f(x) = x^2 - 4x$	$f(x) = -3x^2 \rightarrow f(x) = -6x^2$
		

7	8	9
$f(x) = -x^2 \rightarrow f(x) = -x^2 - 4$	$f(x) = x^2 \rightarrow f(x) = x^2 + 7x$	$f(x) = x^2 \rightarrow f(x) = \frac{1}{2}x^2$
		

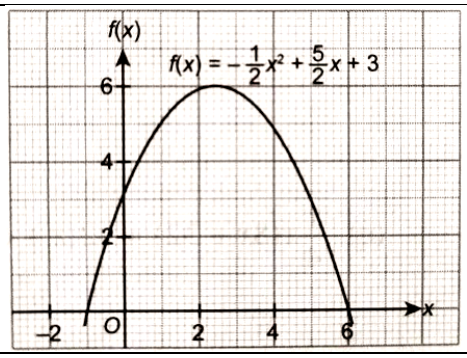
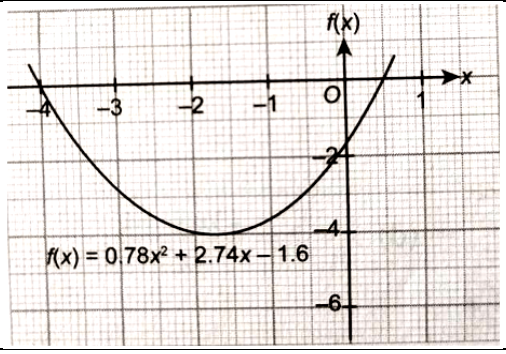
Recap 1 for Note 5

a	b	c

Note 6 Roots of quadratic functions *Punca-punca bagi setiap graf fungsi kuadratik*

Exercise 6

Mark the roots of the each of the following graphs of quadratic functions.
Tandakan punca-punca bagi setiap graf fungsi kuadratik.

1	2
	

Exercise 7

Determine whether the given value for x is the root for each of the following quadratic equations.
Tentukan sama ada nilai x yang diberika adalah punca bagi setiap persamaan kuadratik yang berikut.

1	2	3
$x^2 - x - 12 = 0\ ;\ (x = -3)$	$2x^2 - 15x - 8 = 0\ ;\ (x = 8)$	$8x^2 + 4x = 9\ ;\ (x = -2)$

Exercise 8

Determine the roots of each of the following quadratic equations. Exam Hot Question
Tentukan punca bagi setiap persamaan kuadratikk berikut.

1	2	3
$2x^2 - 18x = 0$	$x(4x + 1) - 2 = 10 - 12x$	$\frac{5x^2 - 3}{14x} = 1$

Exercise 9 Exam Hot Question

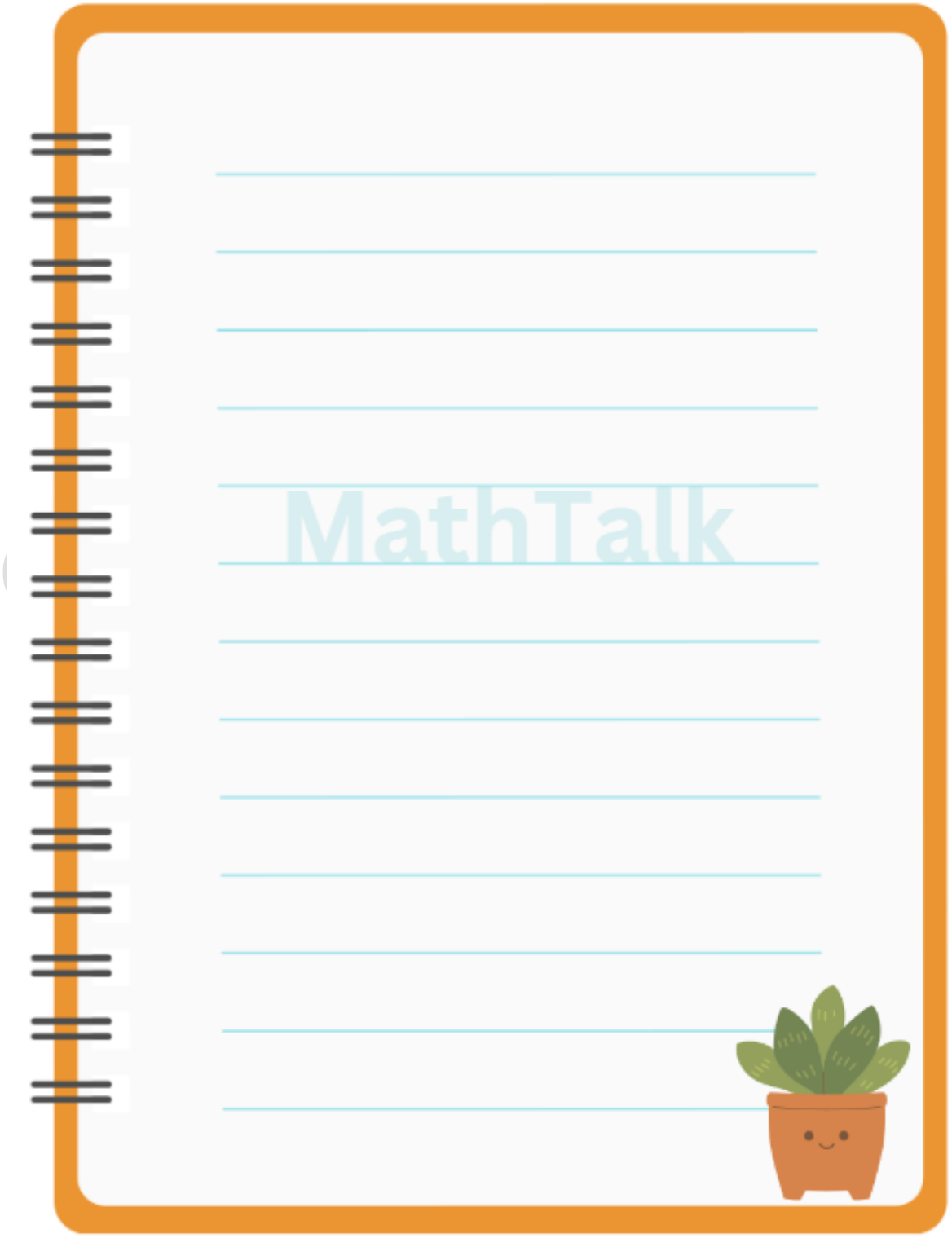
Solve each of the following quadratic equations.
Selesaikan setiap persamaan kuadratik yang berikut.

1	2	3
$(x^2 - 2) - x = \frac{5x}{2}$	$-\frac{2y^2}{3} = (y - 3)$	$2y(y - 1) = -5y + 2$

Note 7

Sketch a graph of $f(x) = x^2 + 4x - 5$ quadratic equations.

Lakarkan graf bagi fungsi kuadratik $f(x) = x^2 + 4x - 5$.



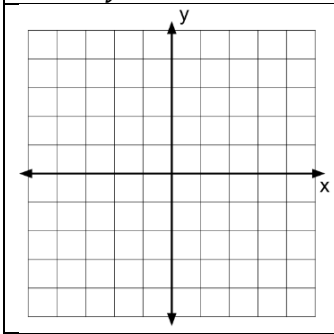
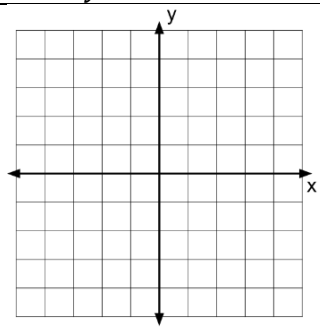
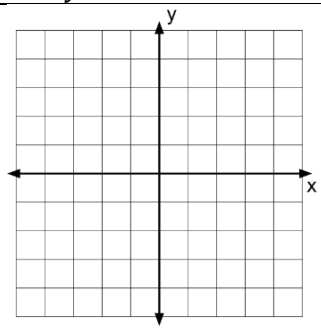
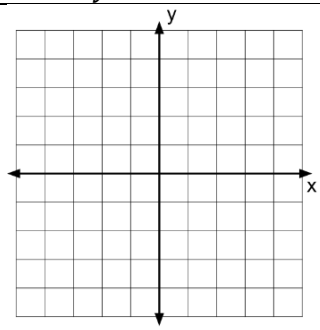
Exercise 10

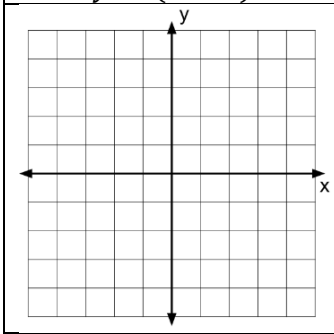
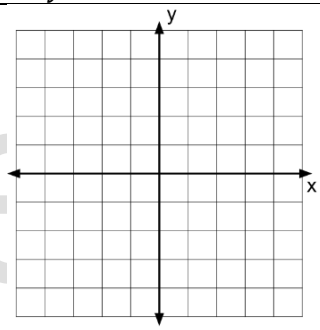
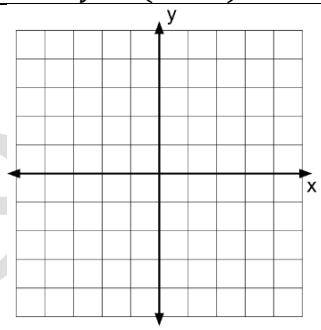
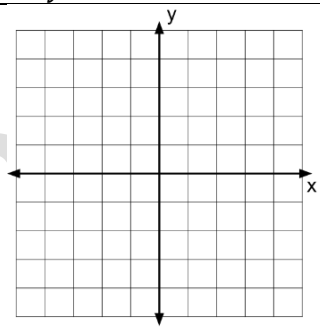
Sketch a graph for each of the following quadratic functions.

Lakarkan graf bagi setiap fungsi kuadratik yang berikut.

1	2	3
$f(x) = x^2 - 9x + 14$	$f(x) = x^2 - 9$	$f(x) = x^2 - 4x + 4$

Skill 8

$y = x^2 - 4$	$y = x^2 + 4x$	$y = x^2 - x - 6$	$y = x^2 + 4$
			
Different roots *Punca yang berbeza*			No roots *Tiada punca*

$y = (x - 4)^2$	$y = x^2 - 8x + 16$	$y = (x + 4)^2$	$y = x^2 + 8x + 16$
			
Equal roots *Punca yang sama*			

Recap 2

Tutorial 1 Paper 1

1. Calculate the value of c if the graph of the quadratic function $f(x) = 4(x-5)(x-3) - c$ passes through point P$(2, -3)$.
Hitung nilai c jika graf fungsi kuadratik $f(x) = 4(x-5)(x-3) - c$ melalui titik P$(2, -3)$.
A 15 B 9 C -9 D -15

2. $5 - 2(3-y)^2 =$
A $5 + y^2$ B $-13 + 2y^2$
C $9 - 6y + y^2$ D $-13 + 12y - 2y^2$

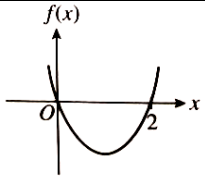
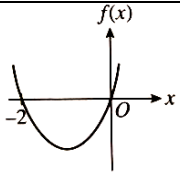
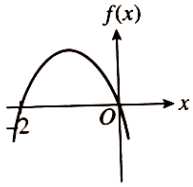
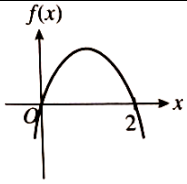
3. Which of the following is **not** a quadratic expression in one variable?
*Antara berikut, yang manakah **bukan** unkapan kuadratik dalam satu pemboleh ubah?*
A $\frac{5}{6}y^2 - 5$ B $5x^2 + x^{-2}$
C $p(3-2p)$ D $-\frac{1}{3}k^2 + 4k$

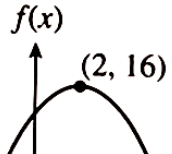
4. Solve the following quadratic equation $4x(2x-1) - x = 3$:
Selesaikan persamaan kuadratik berikut $4x(2x-1) - x = 3$:
A $x = -1, x = \frac{3}{8}$ B $x = -\frac{3}{4}, x = \frac{1}{3}$
C $x = -\frac{1}{2}, x = \frac{3}{4}$ D $x = -\frac{3}{8}, x = 1$

5. Express the quadratic equation $\frac{4}{2y-1} = 7 - \frac{3}{y}$ in general form.
Ungkapkan persamaan kuadratik $\frac{4}{2y-1} = 7 - \frac{3}{y}$ dalam bentuk am.
A $14y^2 + 17y - 3 = 0$ B $-14y^2 + 17y + 3 = 0$
C $14y^2 - 17y - 3 = 0$ D $14y^2 - 17y + 3 = 0$

6. Find the roots of the quadratic equation $(4m-1)^2 = 4m^2$.
Cari punca-punca bagi persamaan kuadratik $(4m-1)^2 = 4m^2$.
A $m = -\frac{1}{2}, m = -\frac{1}{6}$ B $m = -\frac{1}{2}, m = \frac{1}{6}$
C $m = -\frac{1}{6}, m = \frac{1}{2}$ D $m = \frac{1}{6}, m = \frac{1}{2}$

7. Which graph represents $f(x) = 2x - x^2$?
Graf manakah yang mewakili $f(x) = 2x - x^2$?

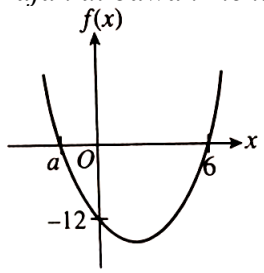
A	B	C	D
			



8. Which of the following quadratic functions represents the above graph?
Antara fungsi kuadratik berikut, yang manakah mewakili graf di atas?

A $f(x) = x^2 - 4x + 16$
B $f(x) = (x-2)^2 - 16$
C $f(x) = -x^2 - 2x + 16$
D $f(x) = -(x-2)^2 + 16$

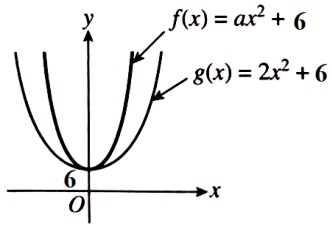
9. The diagram shows the graph of the quadratic function $f(x) = x^2 + bx - 12$.
Rajah di bawah menunjukkan graf bagi fungsi kuadratik $f(x) = x^2 + bx - 12$.



Calculate the values of a and b. *Hitung nilai a dan nilai b.*
A $a = -1, b = -3$ B $a = -2, b = -4$
C $a = -2, b = -5$ D $a = -4, b = 4$

Tutorial 2

1. The diagram shows two graphs of quadratic functions $y = f(x)$, and $y = g(x)$, drawn on the same axes.
Rajah di bawah menunjukkan dua graf fungsi kuadratik, $y = f(x)$ *dan* $y = g(x)$*, dilukis pada paksi yang sama.*

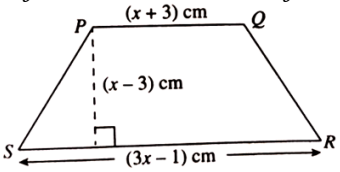


State the possible value of a. *Nyatakan nilai a yang mungkin.*
A 3 B 1 C $\frac{1}{3}$ D $\frac{1}{4}$

2. Given the roots of the graphs of the quadratic function $f(x) = -x^2 + 2x + 8$ are -2 and 4. Find the coordinates of the maximum point.
Diberi punca-punca bagi graf fungsi kuadratik $f(x) = -x^2 + 2x + 8$ *ialah* -2 *dan* 4*. Cari koordinat titik maksimum.*
A $(-1,11)$ B $(-1,9)$ C $(1,9)$ D $(1,11)$

3. Find the equation of axis of symmetry of the graph of the quadratic function $f(x) = 3x^2 - x - 2(5 - x)$.
Cari persamaan paksi simetri bagi graf fungsi kuadratik $f(x) = 3x^2 - x - 2(5 - x)$.
A $x = \frac{10}{7}$ B $x = \frac{1}{5}$ C $x = -\frac{1}{6}$ D $x = -\frac{10}{3}$

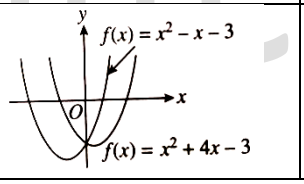
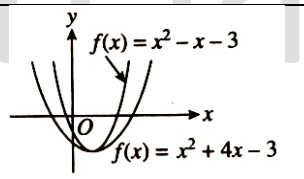
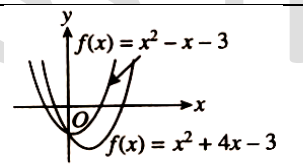
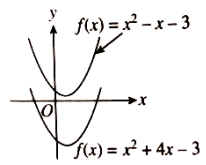
4. The diagram shows a trapezium PQRS.
Rajah di bawah menunjukkan sebuah trapezium PQRS.



Form a quadratic expression of the area, in cm^2, of the trapezium PQRS in terms of x.
Bentuk satu ungkapan kuadratik bagi luas, dalam cm^2, trapezium PQRS dalam sebutan x.

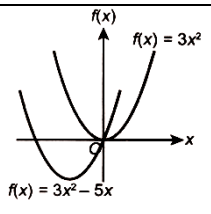
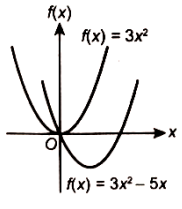
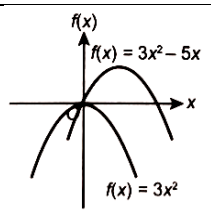
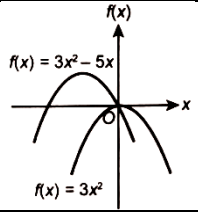
A $-2x^2 - 5x + 3$ B $2x^2 - 5x - 3$
C $2x^2 - 5x + 3$ D $-2x^2 - 5x - 3$

5. Which of the following shows the change of graph of the quadratic function $f(x) = x^2 - x - 3$ to $f(x) = x^2 + 4x - 3$?
Antara berikut, yang manakah menunjukkan perubahan graf bagi fungsi kuadratik $f(x) = x^2 - x - 3$ *kepada* $f(x) = x^2 + 4x - 3$ *?*

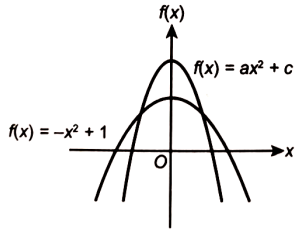
A	B	C	D
			

6. The length of a rectangle exceeds its width by 5cm. The area of the rectangle is 500cm^2. Calculate its length, in cm.
Panjang sebuah segi empat tepat melebihi lebarnya sebanyak 5cm. Luas segi empat tepat itu ialah 500cm^2. Hitung panjangnya, dalam cm.
A 10 B 15 C 20 D 25

7. Which of the following represents the change of graph of function $y = 3x^2$ to $y = 3x^2 - 5x$?
Antara berikut, graf yang manakah mewakili perubahan graf bagi fungsi $y = 3x^2$ *to* $y = 3x^2 - 5x$ *?*

A	B	C	D
			

8. The diagram shows the graphs of two quadratic functions.
Rajah di bawah menunjukkan graf bagi dua fungsi kuadratik.



What are the possible values of a and c? *Apakah nilai a dan c yang mungkin*?

A $a = -\frac{1}{2}, c = 2$ B $a = -2, c = 2$

C $a = 1, c = 3$ D $a = -1, c = 2$

Tutorial 3 PAPER 2

1. a.Show that the quadratic equation $(r-1)(r+3) = \frac{r+3}{2}$ can be written as:
   Tunjukkan bahawa persamaan kuadratik $(r-1)(r+3) = \frac{r+3}{2}$ *boleh ditulis sebagai:*

   b.Hence, solve the quadratic equation.
   Seterusnya, selesaikan persamaan kuadratik itu.

2. Given one of the roots of the quadratic equation $px^2 - 4x + 3p - 8 = 0$ is 1.
   Diberi satu daripada punca bagi persamaan kuadratik $px^2 - 4x + 3p - 8 = 0$ *ialah 1.*
   a. Calculate the value of p.
   Hitung nilai p.

   b. Find the other root of the equation.
   Cari punca yang satu lagi bagi persamaan itu.

3. Solve the following quadratic equation:
   Selesaikan persamaan kuadratik berikut:
   $$2m = \frac{12}{m} - 5$$

4. The product of two positive numbers is 448 and the larger number exceeds the smaller number by 12. If the smaller number is p, calculate the value of p.
   Hasil darab dua nombor positif ialah 448. Nombor yang lebih besar melebihi nombor yang lebih kecil sebanyak 12. Jika nombor yang lebih kecil ialah p, hitung nilai p.

5. Solve the following quadratic equation:
   Selesaikan persamaan kuadratik berikut:

$$-\frac{3}{2-5p} = \frac{p}{2-3p}$$

6. Before starting a game, Salmiah and Kupamar had a total of 30 marbles. Then, each of the them lost 6 marbles at the end of the game. The product of the number of their marbles at the end of the game was 80. Calculate the number of Salmiah's marbles and the number of Kupamar's marbles at the beginning of the game.
   Sebelum memulakan suatu permainan, Salmiah dan Kupamar mempunyai sejumlah 30 biji guli. Kemudian, mereka hilang 6 biji guli setiap orang pada akhir permainan itu. Hasil darab bilangan guli mereka pada akhir permainan itu ialah 80. Hitung bilangan guli Salmiah dan bilangan guli Kupamar pada permulaan permainan itu.

7. A teacher wants to buy a box of x pencil worth RM12 as a present for the winner of a quiz. If each pencil is given a discount of 10 sen , the teacher will get to buy 4 more pencils with the same amount of money.
   Seorang guru ingin membeli sekotak x pensel yang berharga RM12 sebagai hadiah untuk pemenang suatu kuiz. Jika setiap pensel itu diberi diskaun sebanyak 10 sen, cikgu itu akan dapat membeli 4 batang pensel lagi dengan jumlah wang yang sama.
   a. Calculate the number of pencils that the teacher can buy after the discount.
      Hitung bilangan pensel yang dapat dibeli oleh guru itu selepas diskaun.

   b. Calculate the original price of each pencil.
      Hitung harga asal setiap pensel itu.

8. Train M travels for 330km at an average speed of x km h^{-1} from Kuala Lumpur to Kota Bahru. Train N travels from Kota Bahru at an average speed of $(x+5)$ km h^{-1} and arrives at Kuala Lumpur 30 minutes earlier than train M. Calculate the total time, in hours, taken by the two trains.
   Kerata api M bergerak sejauh 330km dengan laju purata x km j^{-1} dari Kuala Lumpur ke Kota Bahru. Kereta api N bergerak dari Kota Bahru dengan laju purata (x+5) km j^{-1} dan sampai di Kuala Lumpur 30 minit lebih awal daripada kereta api M. Hitung jumlah masa, dalam jam, yang diambil oleh dua buah kereta api itu.

Answer *Jawapan*

Exercise 1

1. Yes Ya
2. No *Bukan*
3. No *Bukan*
4. Yes Ya
5. Yes Ya
6. No *Bukan*
7. No *Bukan*
8. No *Bukan*
9. Yes Ya
10. No *Bukan*

Exercise 2

1. a=3, b=1, c=−5, ∪ shape, minimum point
2. a= −1, b=0, c=6, ∩ shape, maximum point
3. a=2, b= −4, c=0, ∪ shape, minimum point
4. a=−10, b=0, c=0, ∩ shape, maximum point
5. it is not a quadratic function.

Exercise 3

1. x=1
2. x=4
3. x=1

Exercise 4

1. $c = -8$
2. $c = -21$
3. $c = -7$

Exercise 5
Pls refer to video

Exercise 6
Pls. refer to video

Exercise 7

1. Yes *Ya*
2. Yes *Ya*
3. No *Bukan*

Exercise 8

1. $x = -3$ or *atau* $x = 3$
2. $x = -\frac{1}{4}$ or *atau* $x = 0$
3. $x = -\frac{1}{5}$ or *atau* $x = 3$

Exercise 9

1. $x = -\frac{1}{2}$ or *atau* $x = 4$
2. $x = -3$ or *atau* $x = \frac{3}{2}$
3. $x = \frac{1}{2}$ or *atau* $x = -2$

Exercise 10
Pls refer to video

Tutorial 1
1 A 2 D 3 B 4 D 5 D 6 D 7 D 8 D 9 B

Tutorial 2
1 A 2 C 3 C 4 B 5 A 6 D 7 B 8 B

Tutorial 3

1. $2r^2 + 3r - 9$, b.$r = \frac{3}{2}, r = -3$
2. $a.\ p = 3$, b.$x = \frac{1}{3}$
3. $m = -5\ or\ \frac{3}{2}$
4. $p = 16$
5. $p = -2\ or\ \frac{3}{5}$
6. $14, 16$
7. 24, b.RM0.60
8. $11\frac{1}{2}$ hours *jam*

热卖中

by 冰姐讲数 MathTalk, Afterclass

一年级数学

二年级数学

三年级数学

四年级数学

五年级数学

六年级数学

独中初一数学

独中初二数学

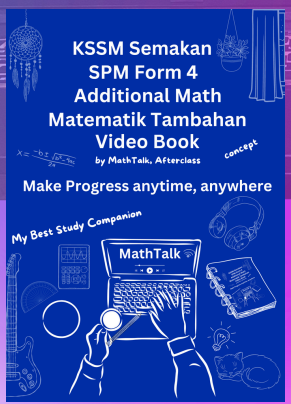
独中初三数学

国中F1 Math

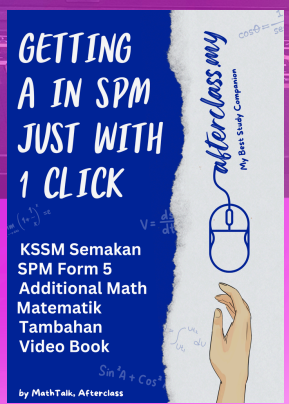
国中F2 Math

国中F3 Math

国中F5 Math



国中F4 AddMath



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独中初一地理

整理中

独中高一数学（文商）　独中高二数学（文商）　独中高三数学（文商）　独中高一高数（理科）