

# Quadratic Functions and Equations

## Fungsi dan Persamaan Kuadratik

Form 4 / Tingkatan 4 | KSSM | Time / Masa: 40 min | Total marks: 16

Name / Nama:

Class / Kelas:

Date / Tarikh:

/ 16

### Section A · Multiple Choice

5 × 1 = 5 marks

Choose the correct answer and write A, B, C or D in the box.

Pilih jawapan yang betul dan tulis A, B, C atau D dalam kotak.

1. Solve
- $x^2 - 5x + 6 = 0$
- .

Selesaikan  $x^2 - 5x + 6 = 0$ .A.  $x = 2, x = 3$  B.  $x = 1, x = 6$  C.  $x = -2, x = -3$  D.  $x = 5, x = 6$ 

2. What are the roots of
- $x^2 - 9 = 0$
- ?

Apakah punca-punca bagi  $x^2 - 9 = 0$ ?

A. 3 B. -3 C. 9, -9 D. 3, -3

3. Which of the following is a quadratic expression?

Antara berikut, yang manakah ungkapan kuadratik?

A.  $3x + 5$  B.  $2/x + 1$  C.  $x^2 - 4x$  D.  $x^3 - 1$ 

4. Find the value of
- $b^2 - 4ac$
- for
- $x^2 + 4x + 4 = 0$
- .

Cari nilai  $b^2 - 4ac$  bagi  $x^2 + 4x + 4 = 0$ .

A. 16 B. 0 C. 8 D. -16

5. What is the y-intercept of the graph
- $y = x^2 - 2x - 8$
- ?

Apakah pintasan-y bagi graf  $y = x^2 - 2x - 8$ ?

A. -2 B. -8 C. 8 D. 2

### Section B · Fill in the Blanks

8 × 1 = 8 marks

Fill in the blanks with the correct answer.

Isi tempat kosong dengan jawapan yang betul.

1. Factorise
- $x^2 + 7x + 12 = \underline{\hspace{2cm}}$

Faktorkan  $x^2 + 7x + 12 = \underline{\hspace{2cm}}$ 

2. Solve
- $(x - 4)(x + 2) = 0$
- .
- $\underline{\hspace{2cm}}$

Selesaikan  $(x - 4)(x + 2) = 0$ .  $\underline{\hspace{2cm}}$ 

3. Solve
- $x^2 = 49$
- .
- $\underline{\hspace{2cm}}$

Selesaikan  $x^2 = 49$ .  $\underline{\hspace{2cm}}$ 

4. Expand
- $(x + 5)^2 = \underline{\hspace{2cm}}$

Kembangkan  $(x + 5)^2 = \underline{\hspace{2cm}}$ 

5. Solve
- $x^2 - 6x = 0$
- .
- $\underline{\hspace{2cm}}$

Selesaikan  $x^2 - 6x = 0$ .  $\underline{\hspace{2cm}}$ 

6. The axis of symmetry of
- $y = (x - 3)^2 + 1$
- is
- $x = \underline{\hspace{2cm}}$

Paksi simetri bagi  $y = (x - 3)^2 + 1$  ialah  $x = \underline{\hspace{2cm}}$ 

7. The minimum point of
- $y = (x - 3)^2 + 1$
- is
- $\underline{\hspace{2cm}}$

Titik minimum bagi  $y = (x - 3)^2 + 1$  ialah  $\underline{\hspace{2cm}}$ 

8. For
- $2x^2 + 3x - 5 = 0$
- , the value of
- $b^2 - 4ac$
- is
- $\underline{\hspace{2cm}}$

Bagi  $2x^2 + 3x - 5 = 0$ , nilai  $b^2 - 4ac$  ialah  $\underline{\hspace{2cm}}$ 

### Section C · Word Problems

3 × 1 = 3 marks

Solve the following problems. Write your answer in the box.

Selesaikan masalah berikut. Tulis jawapan anda dalam kotak.

1. Hafiz's rectangular garden is 3 m longer than it is wide. Its area is 40 m
- <sup>2</sup>
- . Find the width.

Kebun segi empat tepat Hafiz 3 m lebih panjang daripada lebarnya. Luasnya 40 m<sup>2</sup>. Cari lebarnya.

2. The height of a ball is
- $h = 20t - 5t^2$
- , where
- $t$
- is in seconds. Find
- $t$
- when the ball lands.

Tinggi sebiji bola ialah  $h = 20t - 5t^2$ , dengan  $t$  dalam saat. Cari masa apabila bola mencecah tanah.

3. Siti thinks of two consecutive positive integers with a product of 156. Find the two numbers.

Siti memikirkan dua integer positif berturutan yang hasil darabnya 156. Cari kedua-dua nombor itu.