



**BINA BANGSA SCHOOL KJS**  
**MATHEMATICS DEPARTMENT**

**TOPICAL TEST: CHAPTER 1 QUADRATIC FUNCTIONS**  
**SEC 3 ACCELERATED TAYLOR**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**1. Choose and answer only 2 items.** [8]

Find the value (s) or range of values of  $k$  for which:

(A)  $kx^2 - 2kx + 8 = 0$  has 2 distinct roots,

(B) the line  $y = x - 1$  is tangent to  $y^2 = k - 7x$ ,

(C)  $\frac{1}{7}kx^2 + 2x + 14 = 0$  has two real roots.

**2. Solve the following quadratic equations using the indicated method.**

(A)  $x^2 + 9x + 1 = 0$  **by completing the square** [3]

(B)  $(6x - 5)(x + 4) = 3x^2$  **using the quadratic formula** [4]

**3. Explain why  $x^2 - 9x + 22 = 0$  is completely above or below the  $x$ -axis. Include a sketch in your explanation.** [4]

**4. Given that  $ax^2 - 7x + c$  is always positive, what conditions must apply to the constants  $a$  and  $c$ ?**

Given an example of values of  $a$  and  $c$  which satisfy the conditions found in part (i). [4]

5. Solve the simultaneous equations:

$$x - 2y + 9 = 0 \quad \text{and} \quad x^2 + 11x = 3xy + 2 \quad [4]$$

Hence, find the value of  $4x - 3y$  in each pair of solutions. [2]

6. Solve the inequalities below:

(a)  $(x + 6)(x - 7) < 0$  [2]

(b)  $8x^2 - 5x - 2 \geq 2x(x - 2)$  [4]