



Your way to an easy A

**2026 WA1 Paper**  
**CHIJ Katong Convent**  
**Mathematics**  
**Secondary 3 G3**

**Instructions to candidates**

- 1. Answer all questions.**
- 2. Omission of essential working will result in loss of marks.**
- 3. If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.**
- 4. Duration: 45 minutes**

Total	/30
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1. (a) Express  $x^2 - 7x + 9$  in the form  $(x - a)^2 + b$ .

Ans: \_\_\_\_\_ [2]

(b) Hence, solve  $x^2 - 7x + 9$ , leaving your answers to two decimal places.

Ans: \_\_\_\_\_ [3]

2. Solve the equation

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

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Ans: \_\_\_\_\_ [4]

3. Sketch the graph of  $y = (x + 1)^2 - 4$ . Indicate clearly the turning point and the values where the graph crosses the x- and y- axes.

[ 2 ]

4. (a) Solve the inequalities  $\frac{9+x}{5} < 5 + x < 6$ . Show your solution on a number line.

Ans: \_\_\_\_\_ [ 4 ]

- (b) Hence, find the smallest integer value of  $x^2$ .

Ans: \_\_\_\_\_ [ 1 ]

5. Machine P can make 60 croissants in  $x$  minutes where  $x$  is an integer. Machine Q make 135 croissants in  $(2x - 1)$  minutes. Together, the two machines can make a total of 27 croissants in 1 minute.

(a) Express, in terms of  $x$ , the number of croissants made by

- (i) machine P in 1 minute,

Ans: \_\_\_\_\_ [ 1 ]

- (ii) machine Q in 1 minute

Ans: \_\_\_\_\_ [ 1 ]

(b) Form an equation in  $x$  and show that it reduces to  $10 + 9x^2 - 47x = 0$ .

[ 3 ]

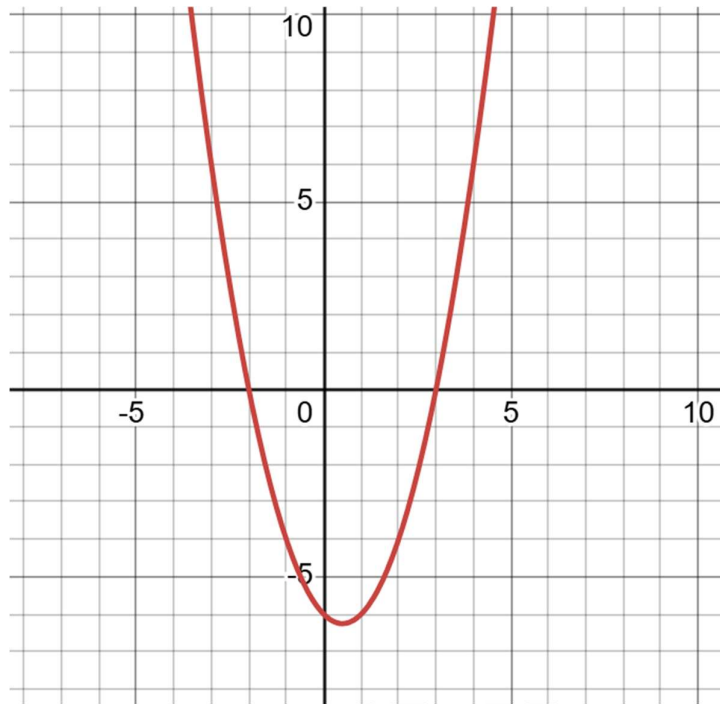
(c) Solve the equation  $10 + 9x^2 - 47x - 0$ .

Ans: \_\_\_\_\_ [ 4 ]

(d) Find the time taken by Machine P to make 132 croissants.

Ans: \_\_\_\_\_ [ 1 ]

6. The diagram shows the graph of  $y = x^2 - x - 6$  for  $-4 \leq x \leq 4$ .



- (a) Use the graph to solve  $x + 6 = x^2$ .

Ans: \_\_\_\_\_ [ 2 ]

- (b) By drawing a suitable line on the same axes, find the value(s) of  $x$  for which  $x^2 - x - 10 = 0$ .

Ans: \_\_\_\_\_ [ 1 ]

**End of Paper**

**Have you checked your work? 😊**

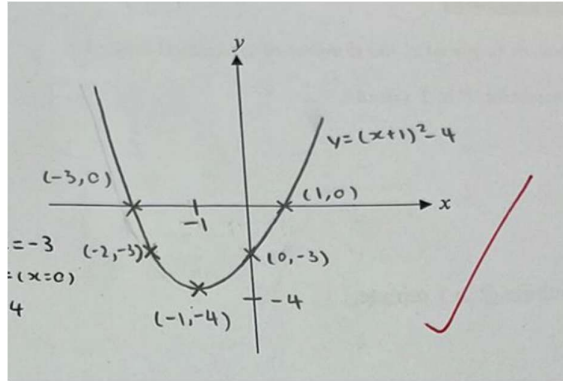
**Solutions**

1a.  $(x - \frac{7}{2})^2 - \frac{13}{4}$

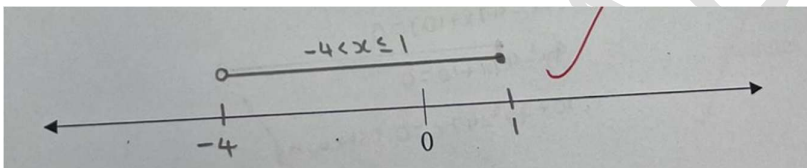
1b. 5.30 or 1.70

2. 5.5 or -1

3.



4a.  $-4 < x \leq 1$



4b. 0

5ai.  $\frac{60}{x}$

5a.ii.  $\frac{13}{2x-1}$

5b.

$$\begin{aligned} \left(\frac{60}{x}\right) + \left(\frac{135}{2x-1}\right) &= 27 \\ \frac{60(2x-1) + 135(x)}{(x)(2x-1)} &= \frac{27}{1} \\ 60(2x-1) + 135(x) &= 27(x)(2x-1) \\ 120x - 60 + 135x &= 27(2x^2 - x) \\ 255x - 60 &= 54x^2 - 27x \\ -54x^2 + 255x + 27x - 60 &= 0 \\ -54x^2 + 282x - 60 &= 0 \\ -6(9x^2 - 47x + 10) &= 0 \\ 9x^2 - 47x + 10 &= 0 \\ \therefore 10 + 9x^2 - 47x &= 0 \text{ (shown)} \end{aligned}$$

5c. 5 or  $\frac{2}{9}$

5d. 11

6a. -2 or 3

6b. draw  $y = x + 4$ ,  $x = -2.4$

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