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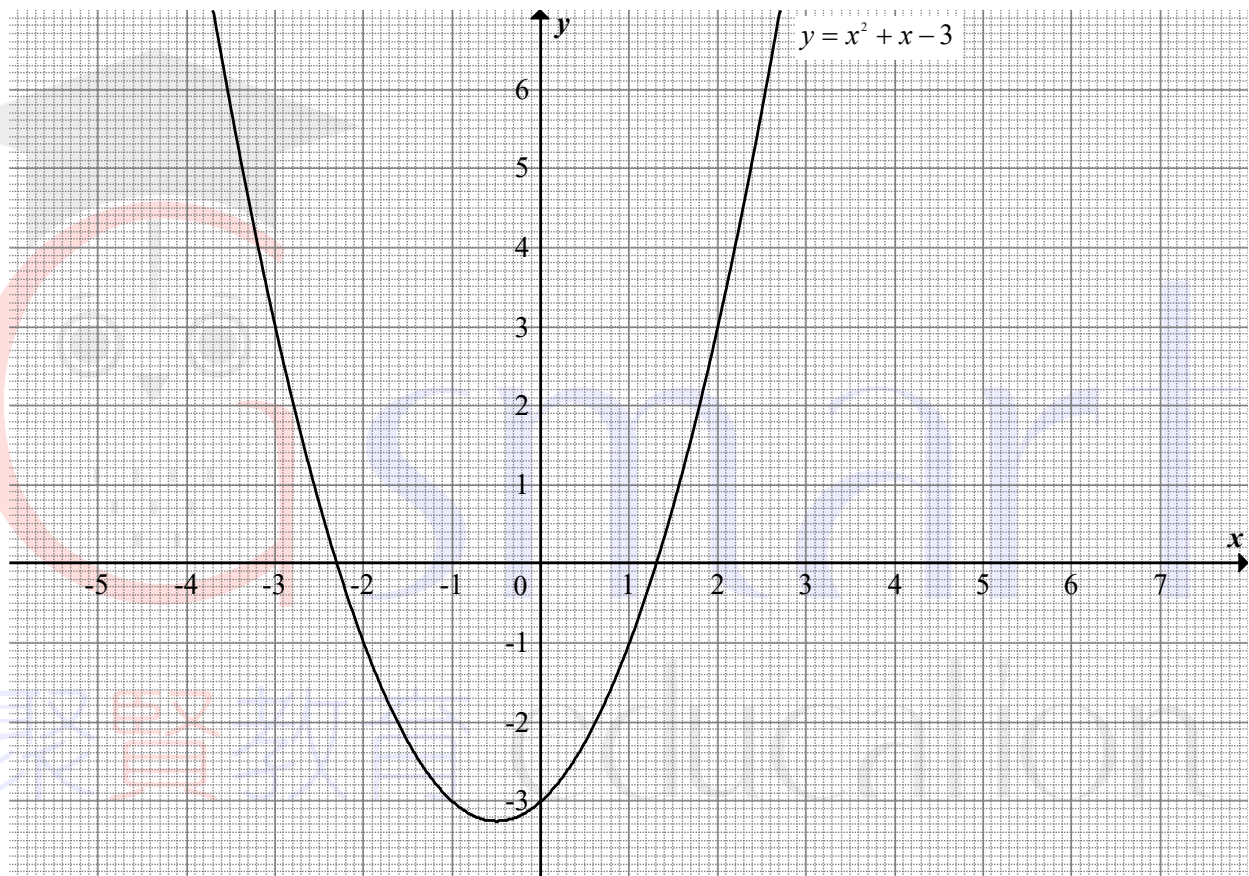
Student Name:

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Revision of More about Equations (I)

Exercises

1. The figure shows the graph of $y = x^2 + x - 3$ for $-4 \leq x \leq 3$. Solve the following simultaneous equations by adding suitable lines in the graph, give the answers to 1 decimal place if necessary.



- (a)
$$\begin{cases} y = x^2 + x - 3 \\ y = 2x + 3 \end{cases}$$
- (b)
$$\begin{cases} y = x^2 + x - 3 \\ y = -x + 5 \end{cases}$$
- (c)
$$\begin{cases} y = x^2 + x - 3 \\ 3x + y + 6 = 0 \end{cases}$$

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2. Solve each of the following simultaneous equations algebraically.

(a)
$$\begin{cases} y = x^2 - 8x + 3 \\ 2x + y + 5 = 0 \end{cases}$$

(b)
$$\begin{cases} x^2 + y^2 = 13 \\ 2x + 3y + 13 = 0 \end{cases}$$

3. Find the number of real solutions of each of the following simultaneous equations.

(a)
$$\begin{cases} y = 2x^2 + x - 3 \\ 4x - y - 2 = 0 \end{cases}$$

(b)
$$\begin{cases} y = x^2 - 2x + 5 \\ 3x - 2y + 6 = 0 \end{cases}$$

4. If the following simultaneous equations have only one real solution, find the value of k .

$$\begin{cases} y = x^2 - 3x + k \\ 5x - y = -7 \end{cases}$$

5. Solve the following trigonometric equations for $0 \leq \theta \leq 360^\circ$.

$$\cos \theta = 2 \sin^2 \theta - 1$$

6. Find the real root(s) of each of the following equations, give the answers in exact value.

(a) $\frac{1}{(x-1)^2} - \frac{2}{x-1} - 35 = 0$

(b) $2^{2x} - 2^x - 2 = 0$

(c) $x + \sqrt{x} = 30$

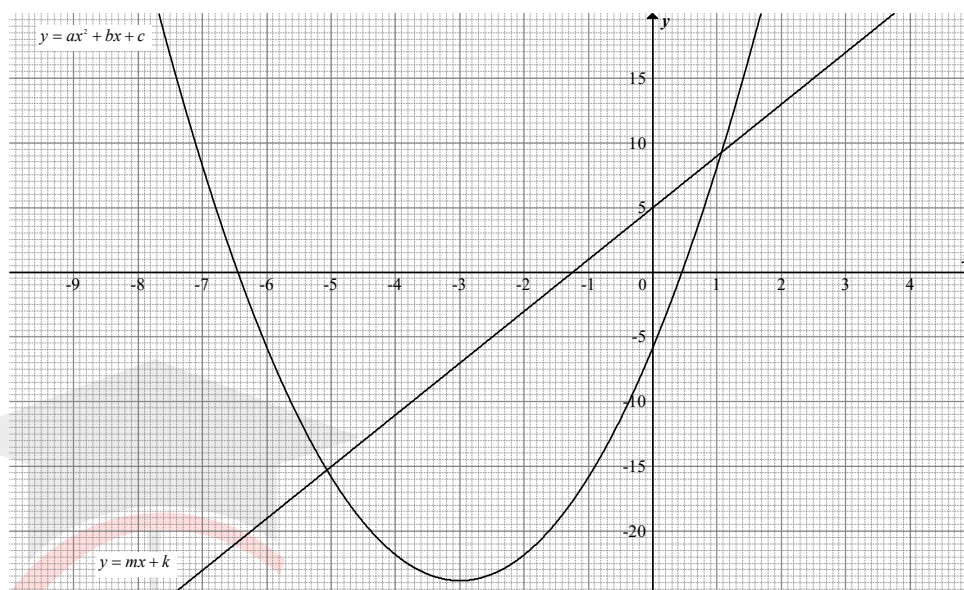
7. Solve $\log_2(x+4) + \log_2(x-3) = 4$, give the answer correct to 3 significant figures.

8. Worker A takes 6 hours to paint a room. If worker A and B work together, they take 1 hour less than worker B alone to paint the room. How long does worker B take to paint the room alone?

S5E-4A

M.C.

1. The figure shows the graphs of $y = ax^2 + bx + c$ and $y = mx + k$. Find the roots of the equation $ax^2 + bx + c = mx + k$, correct to 1 decimal place.

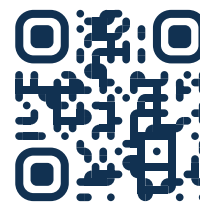


- A. 0.4, -6.4
B. 1.1, -5.1
C. 5.1, -1.1
D. -3.0, -24.0
2. Which of the following equations can be solved by using the graphs of $y = x^2 - x$ and $y = \frac{3}{2}x + 1$?

- A. $2x^2 + x - 2 = 0$
B. $2x^2 + x + 2 = 0$
C. $2x^2 - 5x - 2 = 0$
D. $2x^2 - 5x + 2 = 0$

3. Find the real roots of $x^5 - 8x^3 - 9x = 0$.

- A. $x = -1, 0$ or 9
B. $x = -3, -1$ or 3
C. $x = -3, 0$ or 3
D. $x = 0, -3, -1, 1$ or 3



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