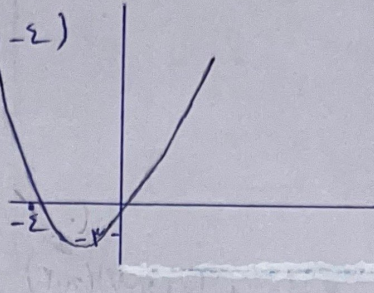
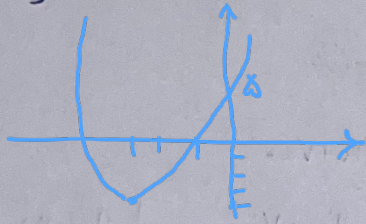


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$$y = ax^2 + bx + c \Rightarrow a=1, b=4, c=5$$

$$x = \frac{-b}{2a} = \frac{-4}{2} = -2$$

$$y = (-2)^2 + 4(-2) + 5 = -1 \Rightarrow (-2, -1)$$



نوع الگوریتم: منبسط

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$$y = ax^2 + bx + c \Rightarrow a=-1, b=2, c=-3$$

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$$x^2 - x - 1 = 0 \quad x^2 - x = 1$$

(ب)

$$x^2 - x + \frac{1}{4} = 1 + \frac{1}{4} \quad (x - \frac{1}{2})^2 = \frac{5}{4}$$

$$x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}} = \pm \frac{\sqrt{5}}{2}$$

$$x = \frac{1}{2} \pm \frac{\sqrt{5}}{2} \Rightarrow x = \begin{cases} \frac{1+\sqrt{5}}{2} \\ \frac{1-\sqrt{5}}{2} \end{cases}$$

$$x^2 - 2x - 1 = 0 \quad x^2 - 2x = 1$$

(الف)

$$x^2 - 2x + 1 = 1 + 1 \quad (x - 1)^2 = 2$$

$$x - 1 = \pm \sqrt{2} \quad x = \begin{cases} \sqrt{2} + 1 \\ -\sqrt{2} + 1 \end{cases}$$

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$$x^2 + x - 5 = 0 \quad ax^2 + bx + c = 0$$

(ب)

$$\Delta = b^2 - 4ac \quad \Delta = 1 + 20 = 21$$

$$\Delta = b^2 - 4ac \quad \Delta = 1 + 20 = 21$$

$$x = \frac{-1 \pm \sqrt{21}}{2} \Rightarrow \begin{cases} x = \frac{-1 + \sqrt{21}}{2} \\ x = \frac{-1 - \sqrt{21}}{2} \end{cases}$$

$$x^2 - 2x - 1 = 0$$

(الف)

$$\Delta = b^2 - 4ac \quad \Delta = 4 + 4 = 8$$

$$x = \frac{2 \pm \sqrt{8}}{2} = 1 \pm \sqrt{2}$$

$$x = \begin{cases} 1 + \sqrt{2} \\ 1 - \sqrt{2} \end{cases}$$

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$x^2 + 3x - 18 = 0 \quad (ب)$ $x^2 + 3x - 18 = (x+V)(x-\Delta) = 0 \Rightarrow \begin{cases} x = -V \\ x = \Delta \end{cases}$	$x^2 - 11x + 18 = 0 \quad (الف)$ $x^2 - 11x + 18 = (x-V)(x-\Delta) = 0 \Rightarrow \begin{cases} x = V \\ x = \Delta \end{cases}$	6
$3x^2 - 10x + V = 0 \quad (ب)$ $\frac{3x^2 - 10x + V}{x} = 0 \Rightarrow x^2 - 10x + \frac{V}{3} = (x-V)(x-\Delta) = 0 \Rightarrow \begin{cases} x = V \\ x = \Delta \end{cases} \Rightarrow \begin{cases} x = \frac{V}{3} \\ x = 1 \end{cases}$	$\Delta x^2 - 12x + V = 0 \quad (الف)$ $\frac{\Delta x^2 - 12x + V}{x} = 0 \Rightarrow x^2 - 12x + \frac{V}{\Delta} = (x-V)(x-\Delta) = 0 \Rightarrow \begin{cases} x = V \\ x = \Delta \end{cases} \Rightarrow \begin{cases} x = \frac{V}{\Delta} \\ x = \frac{\Delta}{\Delta} = 1 \end{cases}$	7
$الف) 2x^2 - \Delta x + 3 = 0 \Rightarrow x^2 - \Delta x + \frac{3}{2} = (x-3)(x-2) = 0 \Rightarrow \begin{cases} x = 3 \\ x = 2 \end{cases} \Rightarrow \begin{cases} x = \frac{3}{2} \\ x = 1 \end{cases}$	$ب) 2x^2 + \Delta x + 3 = 0 \Rightarrow x^2 + \Delta x + \frac{3}{2} = (x+3)(x+2) = 0 \Rightarrow \begin{cases} x = -3 \\ x = -2 \end{cases} \Rightarrow \begin{cases} x = -\frac{3}{2} \\ x = -1 \end{cases}$	8
$ج) 2x^2 - \Delta x + 1 = 0 \Rightarrow a=2, b=-\Delta, c=1 \Rightarrow \Delta = \Delta^2 - 4 \times 2 \times 1 = \Delta^2 - 8 \Rightarrow \Delta = \frac{\Delta^2 - 8}{\Delta}$	$د) \Delta x^2 + Vx + 1 = 0 \Rightarrow a=\Delta, b=V, c=1 \Rightarrow \Delta = V^2 - 4 \times \Delta \times 1 = V^2 - 4\Delta \Rightarrow \Delta = \frac{V^2}{5}$	9
$x^2 - 3x - 2 = 0 \Rightarrow a=1, b=-3, c=-2$ $\Delta = b^2 - 4ac = 9 + 8 = 17$ $x = \frac{-(-3) \pm \sqrt{17}}{2 \times 1} = \frac{3 \pm \sqrt{17}}{2} \Rightarrow \begin{cases} \frac{3+\sqrt{17}}{2} \\ \frac{3-\sqrt{17}}{2} \end{cases}$ $S = \frac{3+\sqrt{17}}{2} + \frac{3-\sqrt{17}}{2} = 3$ $P = \left(\frac{3+\sqrt{17}}{2}\right) \left(\frac{3-\sqrt{17}}{2}\right) = \frac{9 - 17}{4} = -2$	$الف) 3^2 - 2(-2) = 9 + 4 = 13$ $ب) 3^3 - 3(3)(-2) = 27 + 18 = 45$	10
$\left(\frac{9}{3}\right) - \left(\frac{1}{2}\right) \quad (ب)$ $\frac{4!}{3! \times 1!} - \frac{1!}{2! \times 1!} = \frac{4 \times 1 \times 1}{3 \times 2} - \frac{1 \times 1}{2} = \frac{4}{6} - \frac{1}{2} = \frac{2}{3} - \frac{1}{2} = \frac{4-3}{6} = \frac{1}{6}$	$\left(\frac{V}{\Delta}\right) + \left(\frac{9}{2}\right) \quad (الف)$ $\frac{V!}{\Delta! \times (V-\Delta)!} + \frac{4!}{2! \times (4-2)!} = \frac{V \times 4}{2} + \frac{4 \times 1}{2} = 2V + 2 = 2(V+1)$	11