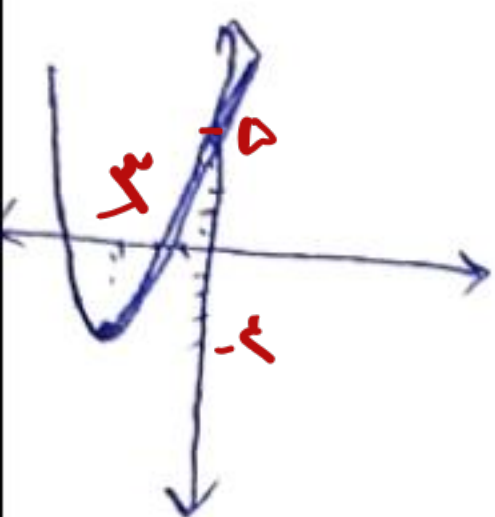


۱۷/۱۳

$$y = x^2 + 4x + 5$$

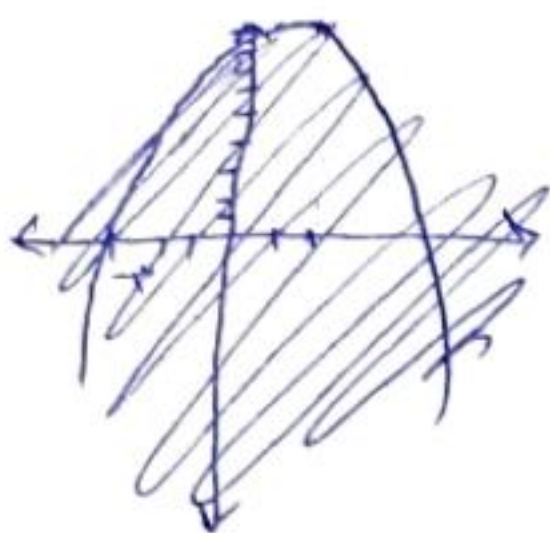
ext / $\frac{b}{2a} \rightarrow -\frac{4}{2} = -2$ ✓
 $-\frac{\Delta}{2a} \rightarrow -\frac{4}{2} = -2$ ✓



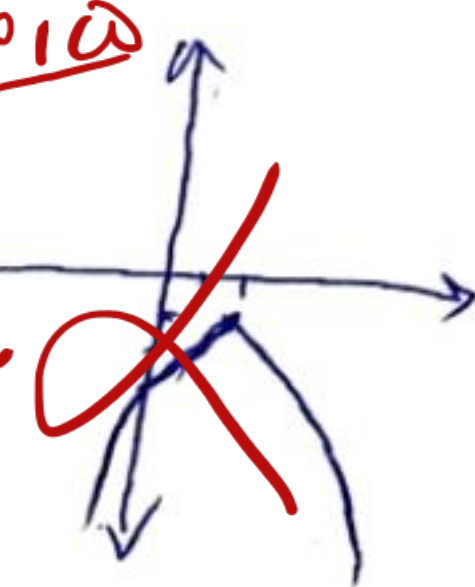
با رافان ۲

$$y = -x^2 + 2x - 2$$

max ext / $\frac{b}{2a}$ ✓



$x = -\frac{b}{2a} = -\frac{2}{2(-1)} = 1$
 $y = -(1)^2 + 2(1) - 2 = -1$



رشته ها؟

$\Delta \geq 0 \rightarrow 9 - 4a \geq 0 \rightarrow a \leq \frac{9}{4}$
 $x = \frac{3 \pm \sqrt{9 - 4a}}{2}$

الف) $a \geq 1$
 $a = 0 \rightarrow x = 1$
 $x = \frac{1}{2}$

$a - 4a > 0$

$a > 4a$

$a < \frac{9}{4}$

$a - 4a < 0$

$-4a < -9$

$a > \frac{9}{4}$

$x^2 - 2x - 1 = 0 \rightarrow (x-1)^2 = 2 \rightarrow x-1 = \pm\sqrt{2} \rightarrow x = 1 \pm \sqrt{2}$
 $x^2 - 2x - 1 + 2 = 0 \rightarrow x^2 - 2x + 1 = 0 \rightarrow (x-1)^2 = 0 \rightarrow x = 1$

الف) $x = \sqrt{2} + 1$
 $x = 1 - \sqrt{2}$

$x^2 - x - 1 = 0 \rightarrow x^2 - x = 1 \rightarrow x^2 - x + \frac{1}{4} = 1 + \frac{1}{4}$

$x = \frac{1 + \sqrt{5}}{2}$

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

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

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

الف) $x^2 - 2x - 1 = 0$

$\Delta = b^2 - 4ac \rightarrow 2 - (-4) = 2 + 4 = 6 \rightarrow \Delta = 6$

$x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow x = \frac{2 \pm \sqrt{6}}{2}$

ب) $x^2 + x - 2 = 0$

$\Delta = b^2 - 4ac \rightarrow 1 - (-4) = 1 + 4 = 5 \rightarrow \Delta = 5$

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

الف) $(x-v)(x-\varepsilon) \quad x=v \quad x=\varepsilon$

ب) $(x+v)(x-\varepsilon) \quad x=-v \quad x=\varepsilon$

①

الف) $x^2 - 12x + 32 = 0 \quad \Delta = 144 - 128 = 16 \quad x = \frac{12 \pm \sqrt{16}}{2} \quad x = \frac{12 \pm 4}{2}$

$x = \frac{v}{a}, x = \frac{b}{a} = 1$

ب) $x^2 - 10x + 21 = 0 \quad \Delta = 100 - 84 = 16$

$x = \frac{10 \pm \sqrt{16}}{2} \quad x = \frac{10 \pm 4}{2}$

الف) $2x^2 - 5x + 3 = 0 \quad x^2 - 2.5x + 1.5 = 0 \quad (x-3)(x-1) \quad x = \frac{3}{2} \quad x = \frac{1}{2}$
 ب) $2x^2 + 5x + 3 = 0 \quad x^2 + 2.5x + 1.5 = 0 \quad (x+3)(x+1) \quad x = -\frac{3}{2} \quad x = -\frac{1}{2}$
 ج) $2x^2 - 5x + 1 = 0 \quad \Delta = 25 - 8 = 17 \quad x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{5 \pm \sqrt{17}}{4}$

د) $2x^2 + 7x + 9 = 0 \quad \Delta = 49 - 72 = -23$

غير حقيقي

$S = \frac{3 - \sqrt{17}}{2} + \frac{3 + \sqrt{17}}{2} = \frac{6}{2} = 3$

الف) $S^2 - 2P = 3^2 - 2(-2) = 9 + 4 = 13$

$P = \frac{3 - \sqrt{17}}{2} \times \frac{3 + \sqrt{17}}{2} = \frac{9 - 17}{4} = -2$

ب) $S^3 - 3SP = 27 + 12 = 39$

الف) $\frac{9!}{2! \times 7!} + \frac{9!}{2! \times 7!} = \frac{9 \times 8}{2} + \frac{9 \times 8}{2} = 72 + 72 = 144$

~~ب) 144~~

ب) $\binom{9}{3} - \binom{8}{2} = \frac{9!}{3! \times 6!} - \frac{8!}{2! \times 6!} = \frac{9 \times 8 \times 7}{3 \times 2 \times 1} - \frac{8 \times 7}{2 \times 1} = 84 - 28 = 56$

56