

۱۷، ۱۷، ۱۷

۱۷، ۱۷، ۱۷

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$$15. 5, 5, 10$$

$$x^2 - 4x + 8 = 0$$

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$$\Rightarrow (x^2 - 4x + 8) + (-2x + 4) = 0$$

$$\Rightarrow (x - 2)^2 - 2(x - 2) = 0$$

$$\Rightarrow (x - 2 - 2)(x - 2) = 0 \Rightarrow (x - 4)(x - 2) = 0 \Rightarrow x = 2, 4$$

$$x^2 + 8x + 7 = 0$$

$$\Rightarrow x^2 + 8x + 14 - 9 = 0$$

$$\Rightarrow (x + 4)^2 - 5 = 0$$

$$\Rightarrow (x + 4)(x + 1) = 0 \Rightarrow x = -1, -5$$

$$x^2 - 5x + 4 = 0$$

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$$\Rightarrow (x - 4)(x - 1) = 0 \Rightarrow x = 1, 4$$

$$x^2 - 5x - 14 = 0$$

$$\Rightarrow (x - 7)(x + 2) = 0 \Rightarrow x = 7, -2$$

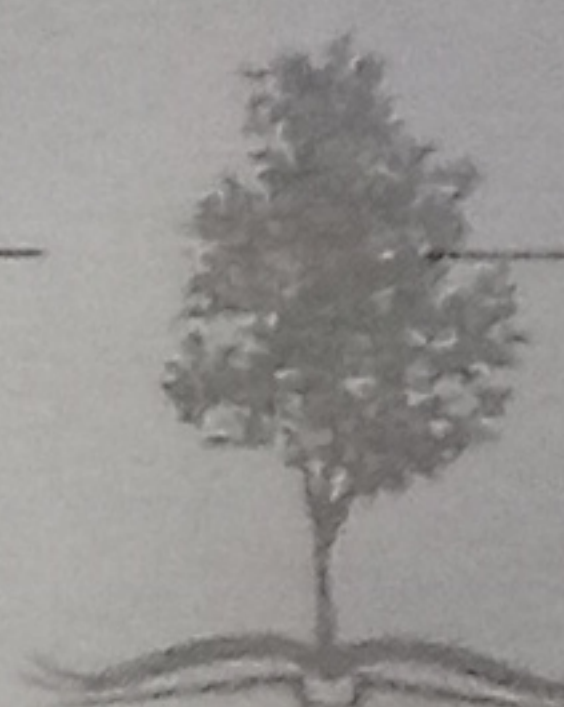
$$x^2 - 5x - 6 = 0$$

۱۷، ۱۷، ۱۷

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(-6)}}{2} = \frac{5 \pm \sqrt{25 + 24}}{2} = \frac{5 + \sqrt{49}}{2}, \frac{5 - \sqrt{49}}{2}$$

$$2x^2 - 5x + \frac{1}{2} = 0$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(2)(\frac{1}{2})}}{4} = \frac{5 \pm \sqrt{25 - 4}}{4} = 1 + \frac{\sqrt{21}}{4}, 1 - \frac{\sqrt{21}}{4}$$



$$x^2 - 5x + 2 = 0$$

۴) روش دلتا

$$a + b + c = 0 \Rightarrow x \rightarrow \frac{1}{c} \rightarrow x = 1, 2$$

$$x^2 + x - 2 = 0$$

$$a + c = b \Rightarrow x \rightarrow -1 \Rightarrow x = -1, \frac{2}{x}$$

$$x^2 - 12x + 20 = 0$$

۵) روش دلتا

$$\Rightarrow x^2 - 12x + 20 = 0$$

$$\Rightarrow (x - 2)(x - 10) = 0 \Rightarrow x = \frac{20}{2}, \frac{20}{10}$$

$$x^2 - 10x + 20 = 0$$

$$\Rightarrow x^2 - 10x + 25 = 0$$

$$\Rightarrow (x - 5)(x - 5) = 0 \Rightarrow x = \frac{25}{5}, \frac{25}{5}$$

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

$$\Delta = 2^2 - 4 \times (-1) \times (-1) = 0 \rightarrow \text{ریشه دارد}$$

$$x^2 - x + 2 = 0$$

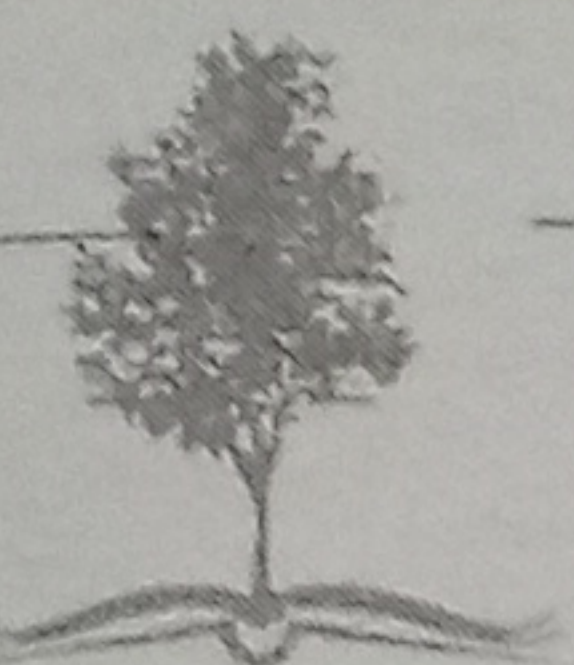
$$\Delta = 1 - 4 \times 2 \times 2 = -15 \rightarrow \text{ریشه ندارد}$$

$$x^2 - 4x + 2 = 0$$

$$\Delta = 16 - 4 \times 2 \times 2 = 0 \rightarrow \text{ریشه دارد}$$

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

$$\Delta = 1 - 4 \times 1 \times 1 = -3 \rightarrow \text{ریشه ندارد}$$



$$2x^2 - 3x + a = 0$$

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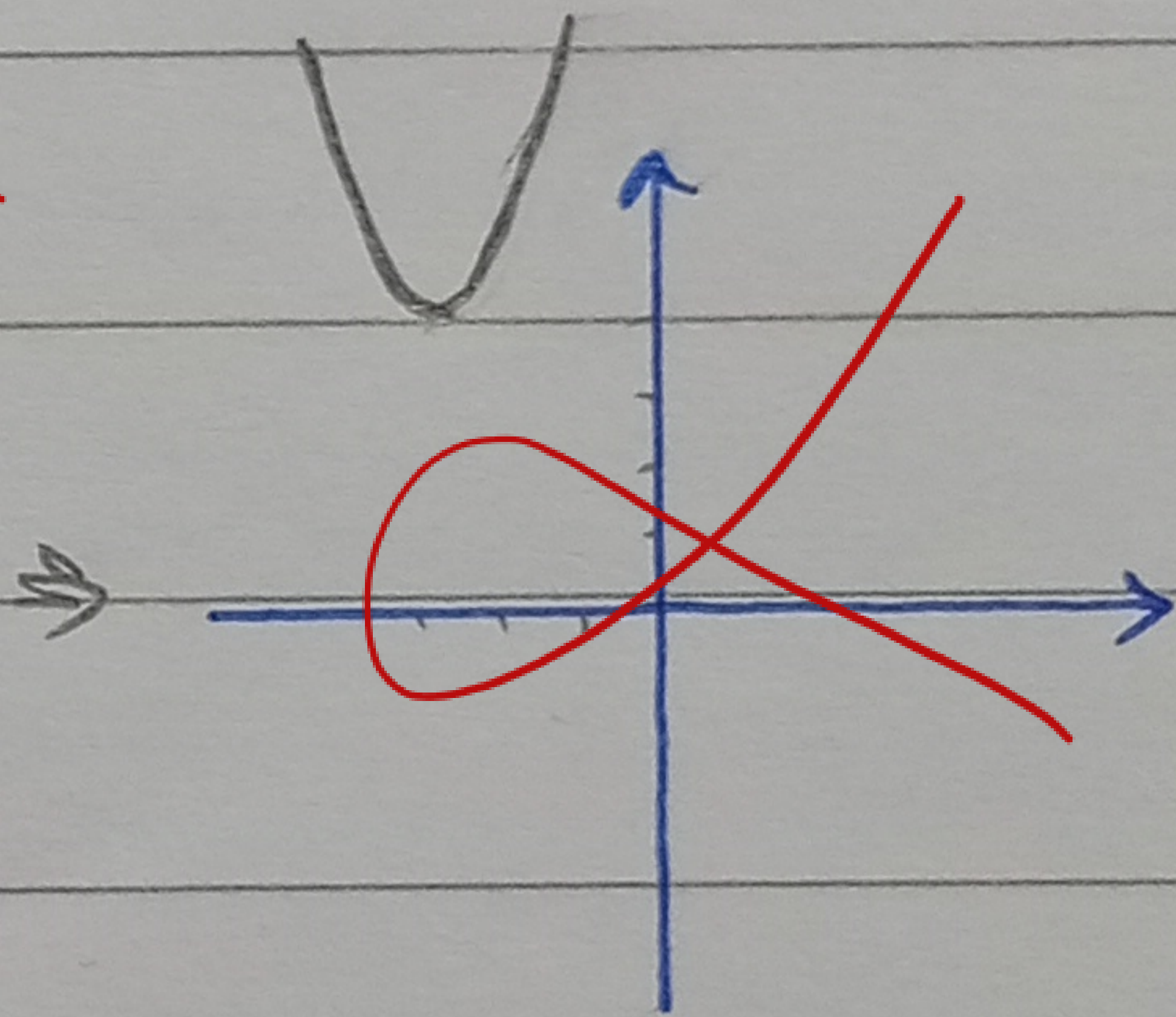
الف) $\Delta = 9 - 4 \times 2 \times a = 9 - 8a \Rightarrow a \rightarrow \frac{1}{2} \Rightarrow \Delta = 1 \checkmark$
 $\Delta > 0$

ب) $\Delta = 9 - 8a \Rightarrow 9 - 8a = 0 \Rightarrow a = \frac{9}{8}$
 $\Delta = 0$

ج) $\Delta = 9 - 8a \Rightarrow a \rightarrow 2 \Rightarrow 9 - 16 = -7 \Rightarrow \Delta = -7 \checkmark$
 $\Delta < 0$

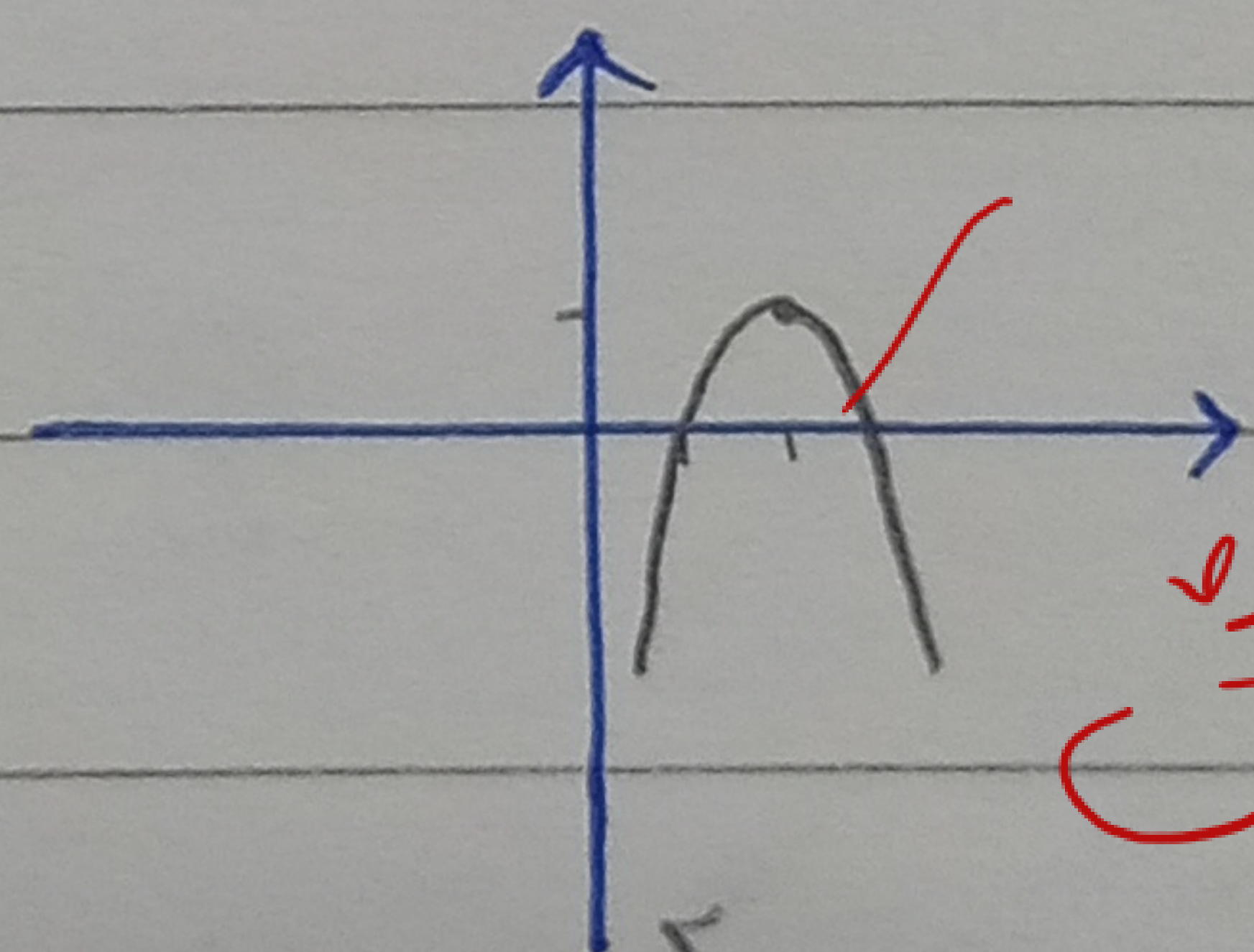
د) $\Delta = 9 - 8a \Rightarrow a \rightarrow 1 \Rightarrow \Delta = 9 - 8 = 1 \checkmark$
 $\Delta = 1$

Min $\left| -\frac{b}{2a} \right| = \left| \frac{-4}{2} \right| = \left| \frac{24-20}{2} \right| = 2$



۵/۲ و ۱/۲

Max $\left| -\frac{b}{2a} \right| = \left| \frac{-4}{-2} \right| = 2$



۱/۵ و ۱/۵
 مثبت
 حل شده است

$y = -x^2 + 4x - 5 \xrightarrow{y=0} -x^2 + 4x - 5 = 0 \Rightarrow x^2 - 4x + 5 = 0$

$\Rightarrow (x-5)(x-1) = 0 \Rightarrow x = 1, 5$

$x^2 - 4x - 5 = 0 \quad S = -\frac{b}{a} = \frac{4}{1} = 4 \quad P = \frac{c}{a} = \frac{-5}{1} = -5$

الف) $S - 2P = 4 - 2 \times (-5) = 14$

ب) $S - 4SP = 4 - 4 \times 4 \times (-5) = 100$

