

۱۹، ۵

۱ $\rightarrow x_0 = \frac{-b}{a} \Rightarrow \frac{-b}{-2} = \left(\frac{b}{2}\right) \rightarrow -\frac{b^2}{4} + \frac{b^2}{4} + 2 = \frac{b^2}{4} + 2$
 $\rightarrow \frac{b^2}{4} + 2 = 4 \rightarrow b^2 = 4 \rightarrow b = \pm 2$
 $\rightarrow \begin{cases} -x^2 + 2x + 2 \\ -x^2 - 2x + 2 \end{cases} \rightarrow b = \pm 2$ ✓

۲ (این تابع همواره مثبت است و صفر ندارد) ✓
 $\Rightarrow x \text{ غرض منفی}$
 $\rightarrow x^2 + 2x + 2 = 0 \rightarrow x = \frac{-2 \pm \sqrt{4 - 4(1)(2)}}{2(1)} = \frac{-2 \pm \sqrt{-4}}{2} = \frac{-2 \pm 2i}{2} = -1 \pm i$
 $\rightarrow x = -1 \pm i$ ✓

۳ $\rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $\rightarrow x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(-1)}}{2(1)} = \frac{1 \pm \sqrt{1 + 4}}{2} = \frac{1 \pm \sqrt{5}}{2}$
 $\rightarrow x = \frac{1 \pm \sqrt{5}}{2}$ ✓

۴ $\rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $\rightarrow x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(-1)}}{2(1)} = \frac{1 \pm \sqrt{1 + 4}}{2} = \frac{1 \pm \sqrt{5}}{2}$
 $\rightarrow x = \frac{1 \pm \sqrt{5}}{2}$ ✓

۵ $\rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $\rightarrow x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(-1)}}{2(1)} = \frac{1 \pm \sqrt{1 + 4}}{2} = \frac{1 \pm \sqrt{5}}{2}$
 $\rightarrow x = \frac{1 \pm \sqrt{5}}{2}$ ✓

۶ $\rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $\rightarrow x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(-1)}}{2(1)} = \frac{1 \pm \sqrt{1 + 4}}{2} = \frac{1 \pm \sqrt{5}}{2}$
 $\rightarrow x = \frac{1 \pm \sqrt{5}}{2}$ ✓

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

$$\left. \begin{array}{l} a+B=m \\ a-B=2 \end{array} \right\} \Rightarrow a+B=2 \rightarrow B=2 \rightarrow B=\frac{2}{2} \Rightarrow a=\frac{9}{2}$$

$$\rightarrow a+B = \frac{9}{2} + \frac{2}{2} = \frac{11}{2} = \frac{11}{2} = m \quad \checkmark$$

(2)

6

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

$$\left. \begin{array}{l} x_1 \\ x_2 = 2x_1 \end{array} \right\} x_1 + x_2 = 2 \rightarrow x_1 = 2 \rightarrow x_1 = 1, x_2 = 2$$

$$\Rightarrow x_1 \cdot x_2 = \frac{2}{2} \rightarrow 2 = m \quad \checkmark$$

(2)

7

$$a+B=V$$

$$a \cdot B = 2 \rightarrow B = \frac{2}{a} \rightarrow B^2 = \frac{4}{a^2} \rightarrow a^2 + \frac{4}{a^2} = a^2 + B^2 = (a+B)^2 - 2aB = (a+B)^2 - 2 \cdot 2 = (a+B)^2 - 4$$

$$\rightarrow (V)^2 - 4 \times 2 = 2 \times 2 \rightarrow 4 = 4 \quad \checkmark$$

(2)

8

$$h(t) = -16t^2 + 20t \rightarrow \frac{-b}{2a} = \frac{-20}{-32} = \frac{5}{8} \rightarrow -16\left(\frac{5}{8}\right)^2 + 20\left(\frac{5}{8}\right) = 6.25 \quad \checkmark$$

(2)

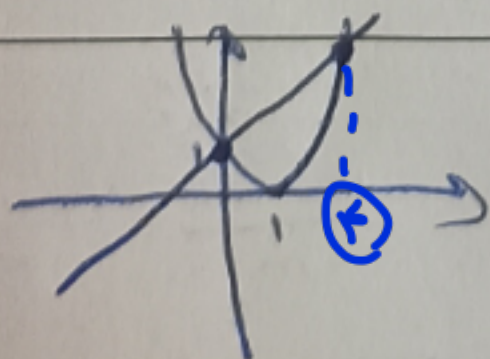
9

قرب
به
بینی
بر
مورد
شد

$$h=0 \Rightarrow -16t^2 + 20t = 0 \rightarrow -16t(t - \frac{5}{4}) = 0 \rightarrow t_1 = 0, t_2 = \frac{5}{4}$$

$$\boxed{0 \rightarrow 5 \text{ ثانیه}} \quad \checkmark$$

$$a) (m-1)^2 \leq m+1$$



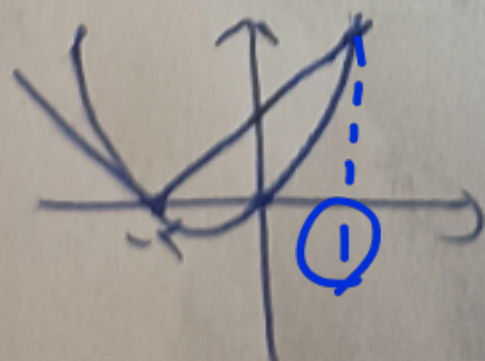
✓

$$m = 0, 1$$

(1, 5)

10

$$\rightarrow x^2 + 2x = |m+1|$$



✓

$$m = -2, 1$$

$$x(m+1) \rightarrow \frac{-2 \pm \sqrt{4 - 4 \cdot 1 \cdot 1}}{2 \cdot 1} = \frac{-2 \pm 0}{2} = -1$$