

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره کلاس B

الف) $x^2 - 6x + 8 = 0 \rightarrow x^2 - 6x + \frac{9}{4} - 1 = 0 \rightarrow (x-3)^2 - 1 = 0 \Rightarrow (x-3)^2 = 1 \Rightarrow |x-3| = 1$

$$\begin{cases} x-3=1 \\ \Rightarrow x=4 \\ -x+3=1 \\ \Rightarrow x=2 \end{cases}$$

1

ب) $x^2 + 8x + 7 = 0 \rightarrow x^2 + 8x + \frac{16}{4} - 9 = 0 \Rightarrow (x+4)^2 - 9 = 0 \Rightarrow (x+4)^2 = 9 \Rightarrow |x+4| = 3$

$$\begin{cases} x+4=3 \\ \Rightarrow x=-1 \\ -x-4=3 \\ \Rightarrow x=-7 \end{cases}$$

2

الف) $x^2 - 5x + 6 = 0 \Rightarrow (x-2)(x-3) = 0 \Rightarrow$

$$\begin{cases} x-2=0 \\ \Rightarrow x=2 \\ x-3=0 \\ \Rightarrow x=3 \end{cases}$$

ب) $x^2 - 6x - 12 = 0 \Rightarrow (x-7)(x+2) = 0 \Rightarrow$

$$\begin{cases} x-7=0 \\ \Rightarrow x=7 \\ x+2=0 \\ \Rightarrow x=-2 \end{cases}$$

الف) $x^2 - 3x - 6 = 0$ $\Delta = b^2 - 4ac = (-3)^2 - (4 \times (-6) \times 1) = 9 - (-24) = 33$

$$\begin{cases} x = \frac{-b + \sqrt{\Delta}}{2a} = \frac{3 + \sqrt{33}}{2} \\ x = \frac{-b - \sqrt{\Delta}}{2a} = \frac{3 - \sqrt{33}}{2} \end{cases}$$

3

ب) $2x^2 - 4x + \frac{1}{2} = 0$ $\Delta = b^2 - 4ac = 16 - (2 \times \frac{1}{2} \times \frac{1}{2}) = 15$

$$\begin{cases} x = \frac{-b + \sqrt{\Delta}}{2a} = \frac{4 + \sqrt{15}}{4} = \frac{1 + \sqrt{15}}{2} \\ x = \frac{-b - \sqrt{\Delta}}{2a} = \frac{4 - \sqrt{15}}{4} = \frac{1 - \sqrt{15}}{2} \end{cases}$$

الف) $x^2 - 3x + 2 = 0 \Rightarrow (x-2)(x-1) = 0 \Rightarrow$

$$\begin{cases} x-2=0 \\ \Rightarrow x=2 \\ x-1=0 \\ \Rightarrow x=1 \end{cases}$$

4

ب) $2x^2 + x - 3 = 0 \Rightarrow x^2 + x - \frac{3}{2} = 0 \Rightarrow (x+2)(x-1) = 0$

$$x_1 = -\frac{3}{2} = -1.5$$

$$x_2 = \frac{1}{2} = 0.5$$

$$\begin{cases} x+2=0 \\ \Rightarrow x=-2 \\ x-1=0 \\ \Rightarrow x=1 \end{cases}$$

5

الف) $x^2 - 12x + 36 = 0 \Rightarrow (x-6)(x-6) = 0$

$$x_1 = \frac{0}{0} = 1$$

$$x_2 = \frac{0}{0} = 1$$

$$\begin{cases} x-6=0 \\ \Rightarrow x=6 \\ x-6=0 \\ \Rightarrow x=6 \end{cases}$$

ب) $2x^2 - 10x + 12 = 0 \Rightarrow x^2 - 5x + 6 = 0 \Rightarrow (x-3)(x-2) = 0$

$$x_1 = \frac{3}{3} = 1$$

$$x_2 = \frac{6}{3} = 2$$

$$\begin{cases} x-3=0 \\ \Rightarrow x=3 \\ x-2=0 \\ \Rightarrow x=2 \end{cases}$$

معادله ۲ ریشه دارد $\Rightarrow \Delta > 0 \Rightarrow \Delta = 13 \Rightarrow \Delta > 0$

معادله جواب (ریشه) ندارد $\Rightarrow \Delta < 0 \Rightarrow \Delta = -16 \Rightarrow \Delta < 0$

معادله یک ریشه (مضاعف) دارد $\Rightarrow \Delta = 0 \Rightarrow \Delta = 0$

معادله جواب ندارد $\Rightarrow \Delta < 0 \Rightarrow \Delta = -7 \Rightarrow \Delta < 0$

الف) $\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow (-2)^2 - 4(1)(\alpha) > 0$

$4 - 4\alpha > 0 \Rightarrow 4 > 4\alpha \Rightarrow \frac{4}{4} > \alpha \Rightarrow \boxed{\frac{1}{1} > \alpha}$

ب) $\Delta = 0 \Rightarrow b^2 - 4ac = 0 \Rightarrow (-2)^2 - 4(1)(\alpha) = 0$

$4 - 4\alpha = 0 \Rightarrow 4 = 4\alpha \Rightarrow \boxed{\alpha = \frac{4}{4}}$

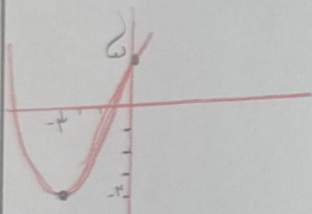
ج) $\Delta < 0 \Rightarrow b^2 - 4ac < 0 \Rightarrow (-2)^2 - 4(1)(\alpha) < 0$

$4 - 4\alpha < 0 \Rightarrow 4 < 4\alpha \Rightarrow \frac{4}{4} < \alpha \Rightarrow \boxed{\frac{1}{1} < \alpha}$

اگر $\Delta < 0$ باشد معادله جواب ندارد پس با توجه به (ج) $R = (\frac{1}{1}, +\infty)$

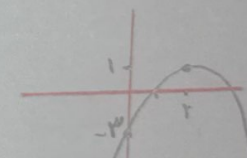
نقطه تقاطع $\Rightarrow$ $x = \frac{-b}{2a} = \frac{-2}{2} = -1$

$y = \frac{-\Delta}{4a} = \frac{-(b^2 - 4ac)}{4a} = \frac{4ac - b^2}{4a} = \frac{4(1)(\alpha) - 2^2}{4} = \frac{4\alpha - 4}{4} = \frac{4(\alpha - 1)}{4} = \alpha - 1$



نقطه تقاطع $\Rightarrow$ $x = \frac{-b}{2a} = \frac{-2}{2} = -1$

$y = \frac{-\Delta}{4a} = \frac{-(b^2 - 4ac)}{4a} = \frac{4ac - b^2}{4a} = \frac{4(-1)(-3) - 2^2}{4} = \frac{12 - 4}{4} = \frac{8}{4} = 2$



ب) $-x^2 + 2x - 3 = 0 \Rightarrow -(x^2 - 2x + 3) = 0 \Rightarrow -(x-3)(x-1) = 0$

$\begin{cases} x-1=0 \Rightarrow \boxed{x=1} \Rightarrow |0 \\ x-3=0 \Rightarrow \boxed{x=3} \Rightarrow |0 \end{cases}$

در صورتی که محور x را قطع نمی کند $\Rightarrow$ برابر ۰ باشد

حاصل جمع ریشه: $-\frac{b}{a} = \frac{-(-2)}{1} = 2$

الف) $s^2 - 2p = 3 - 2(-2) = 9 \Rightarrow 13$

ب) $s^3 - 3sp = 3 - 3(3)(-2) = 17 \Rightarrow 17$

حاصل ضرب ریشه: $\frac{c}{a} = \frac{-3}{1} = -3$