

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره کلاس: جمع

الف) $x^2 - 4x + 1 = 0 \xrightarrow{+1} x^2 - 4x + 9 = 1 \Rightarrow (x-2)^2 = 1 \xrightarrow{\sqrt{\quad}} x-2 = \pm 1$

$x-2 = 1 \Rightarrow x = 3$
 $x-2 = -1 \Rightarrow x = 1$

ب) $x^2 + 8x + 7 = 0 \xrightarrow{+9} x^2 + 8x + 17 = 9 \Rightarrow (x+4)^2 = 9 \xrightarrow{\sqrt{\quad}} x+4 = \pm 3$

$x+4 = 3 \Rightarrow x = -1$
 $x+4 = -3 \Rightarrow x = -7$

الف) $x^2 - 5x + 4 = 0 \rightarrow (x-2)(x-3) = 0 \Rightarrow \boxed{x=2}, \boxed{x=3}$

ب) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \Rightarrow \boxed{x=7}, \boxed{x=-2}$

الف) $x^2 - 3x - 5 = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4 \times 1 \times (-5)}}{2 \times 1}$

$= \frac{3 \pm \sqrt{29}}{2} \Rightarrow \boxed{x = \frac{3 + \sqrt{29}}{2}}, \boxed{x = \frac{3 - \sqrt{29}}{2}}$

ب) $2x^2 - 4x + \frac{1}{2} = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \times 2 \times \frac{1}{2}}}{2 \times 2}$

$x = \frac{4 \pm \sqrt{12}}{4} \Rightarrow x = \frac{4 + 2\sqrt{3}}{4}, x = \frac{4 - 2\sqrt{3}}{4} \Rightarrow x = 1 + \frac{\sqrt{3}}{2}, x = 1 - \frac{\sqrt{3}}{2}$

الف) $x^2 - 3x + 2 = 0 \Rightarrow (x-2)(x-1) = 0 \Rightarrow \boxed{x=2}, \boxed{x=1}$

ب) $x^2 + x - 2 = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{-1 \pm \sqrt{1 - 4 \times 1 \times (-2)}}{2 \times 1}$

$\Rightarrow x = \frac{-1 \pm \sqrt{9}}{2} \Rightarrow x = \frac{-1 + 3}{2}, x = \frac{-1 - 3}{2} = -1$

$a=1, b=1, c=-2$

الف) $x^2 - 12x + 35 = 0 \Rightarrow x^2 - 12x + 36 = 0 \Rightarrow \begin{cases} x = \frac{12}{2} = 6 \\ x = \frac{35}{6} = 5 \end{cases}$

$(x-6)(x-5) = 0$

ب) $3x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow \begin{cases} x = \frac{10}{2} = 5 \\ x = \frac{21}{5} = 4 \end{cases}$

$(x-5)(x-4) = 0$

الف) $-3x^2 + 5x - 1 = 0$

$\Delta: b^2 - 4ac \rightarrow \Delta = 25 - 12 = 13$

$\Delta > 0 \rightarrow$ $\checkmark$ چون دوتا ریشه حقیقی نابرابر داریم

ب) $2x^2 - x + 1 = 0$

$\Delta: b^2 - 4ac \rightarrow \Delta = (-1)^2 - 8 = -7$

$\Delta < 0 \rightarrow$ $\checkmark$ چون دوتا ریشه حقیقی نداریم

ج) $2x^2 - 4x + 2 = 0$

$\Delta: b^2 - 4ac \rightarrow \Delta = (-4)^2 - 16 = 0$

$\Delta = 0 \rightarrow$ چون دوتا ریشه حقیقی برابر داریم

د) $2x^2 - x + 1 = 0$

$\Delta: b^2 - 4ac \rightarrow \Delta = (-1)^2 - 8 = -7$

$\Delta < 0 \rightarrow$ چون دوتا ریشه حقیقی نداریم

الف) $a=1 \Rightarrow 2x^2 - 3x + 1 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{3 \pm \sqrt{9 - 4}}{2} \Rightarrow x = 1, x = \frac{1}{2}$

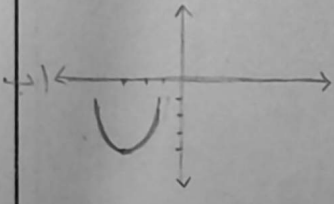
ب) $a=\frac{9}{x} \Rightarrow 2x^2 - 3x + \frac{9}{x} = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{3 \pm \sqrt{9 - 36}}{2 \times \frac{9}{x}} \Rightarrow x = \frac{3}{9}, x = \frac{3}{9}$

ج) $a=2 \Rightarrow 2x^2 - 3x + 2 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{3 \pm \sqrt{9 - 16}}{4} \Rightarrow \Delta < 0 \rightarrow$ ریشه حقیقی نداریم

د) $a=1 \Rightarrow 2x^2 - 2x + 1 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{2 \pm \sqrt{4 - 8}}{2} \Rightarrow x = 1, x = \frac{1}{2}$

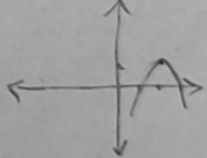
حل در صفحه آخر

الف) $y = x^2 + 4x + 5 \Rightarrow$ نقاط $\left| \frac{b}{2a} = -\frac{4}{2 \times 1} = -2 \right|$ $\Rightarrow$ $\left| \begin{matrix} -3 \\ -4 \end{matrix} \right|$



5

الف) $y = -x^2 + 4x - 3 \Rightarrow$ نقاط $\left| \frac{b}{2a} = -\frac{4}{2 \times (-1)} = 2 \right|$ $\Rightarrow$ $\left| \begin{matrix} 2 \\ 1 \end{matrix} \right|$



ب) $0 = -x^2 + 4x - 3 \rightarrow x^2 - 4x + 3 = 0 \Rightarrow (x-1)(x-3) = 0 \rightarrow x_1 = 1, x_2 = 3$

5

$x^2 - 3x - 2 = 0$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{3 \pm \sqrt{9 + 8}}{2} \Rightarrow x = \frac{3 + \sqrt{17}}{2}, x = \frac{3 - \sqrt{17}}{2}$

1, 5

الف) $S^2 - 2P = \frac{3 + \sqrt{17} + 3 - \sqrt{17}}{2} = \frac{6}{2} = 3$
 $-2P = -2 \times \frac{3 + \sqrt{17}}{2} \times \frac{3 - \sqrt{17}}{2} = -2 \times \frac{9 - 17}{2} = 8$

ب) $(3)^3 - 3 \times 3^2 - 2 \times 3 + 4 = 27 - 27 - 6 + 4 = -2$
 $S^3 - 3PS = (-\frac{3}{2})^3 - 3(-\frac{3}{2})(-\frac{3}{2}) = -\frac{27}{8} - \frac{27}{4} = -\frac{81}{8}$

در توان ۷ باید عدد a را بدست آوریم

$$\Delta > 0 \rightarrow (-3)^2 - 4(2)(a) > 0 \rightarrow 9 - 8a > 0 \rightarrow a < \frac{9}{8}$$

$$\Delta = 0 \rightarrow (-3)^2 - 4(2)(a) = 0 \rightarrow 9 - 8a = 0 \rightarrow a = \frac{9}{8}$$

$$\Delta < 0 \rightarrow 9 - 8a < 0 \rightarrow a > \frac{9}{8}$$

$$\Delta \geq 0 \rightarrow 9 - 8a \geq 0 \rightarrow a \leq \frac{9}{8}$$