

نام و نام خانوادگی: العباسی / کتبی شماره 1 / کلاس دم

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

ب) $x^2 + 8x + 12 = 0 \Rightarrow x^2 + 8x + 12 = 0 \Rightarrow (x+4)^2 = 9 \Rightarrow x = -4 \pm 3$ ✓

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

ب) $x^2 - 5x - 14 = 0 \Rightarrow (x+2)(x-7) = 0 \Rightarrow x = -2, 7$ ✓

الف) $x^2 - 3x - 4 = 0 \xrightarrow{\Delta} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{3 \pm \sqrt{9+16}}{2} = \frac{3 \pm \sqrt{25}}{2}$ ✓

ب) $2x^2 - 7x + 3 = 0 \xrightarrow{\Delta} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{7 \pm \sqrt{49-24}}{4} = \frac{7 \pm \sqrt{25}}{4}$ ✓

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

ب) $x^2 + x - 12 = 0 \Rightarrow (x+4)(x-3) = 0 \Rightarrow x = -4, 3$ ✓

الف) $5x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 35 = 0 \Rightarrow (x-5)(x-7) = 0 \Rightarrow x = 5, 7$ ✓

ب) $3x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0 \Rightarrow x = 3, 7$ ✓

الف) $-3x^2 + 5x - 1 = 0 \xrightarrow{\Delta} \frac{-5 \pm \sqrt{25-12}}{-4} = \frac{-5 \pm \sqrt{13}}{-4}$ ✓

ب) $2x^2 - x + 2 = 0 \xrightarrow{\Delta} \frac{1 \pm \sqrt{1-16}}{4} = \frac{1 \pm \sqrt{-15}}{4}$ ✓

ب) $2x^2 - 4x + 2 = 0 \xrightarrow{\Delta} \frac{4 \pm \sqrt{16-16}}{4} = \frac{4 \pm 0}{4} = 1$ ✓

ت) $2x^2 - x + 1 = 0 \xrightarrow{\Delta} \frac{1 \pm \sqrt{1-8}}{4} = \frac{1 \pm \sqrt{-7}}{4}$ ✓

$$\rightarrow \Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow 9 - 12a > 0 \Rightarrow a < \frac{3}{4}$$

راه حل؟

الف) $a < \frac{3}{4}$ (ب) $a = \frac{3}{4}$ (ج) $a > \frac{3}{4}$

د) $a < \frac{3}{4}$ (ب) $a = \frac{3}{4}$ (ج) $a > \frac{3}{4}$

$\Delta = 0 \Rightarrow b^2 - 4ac = 0$
 $9 - 12a = 0 \Rightarrow a = \frac{3}{4}$

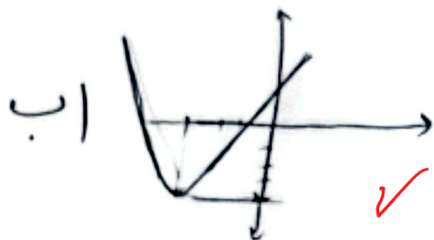
$\Delta < 0 \Rightarrow b^2 - 4ac < 0$
 $9 - 12a < 0 \Rightarrow a > \frac{3}{4}$

1

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

الف) Min / $-\frac{b}{2a} \Rightarrow -\frac{4}{2} = -2$

Min / -2



2

$$y = -x^2 + 4x - 3$$

$-\frac{b}{2a} = -\frac{4}{-2} = 2$

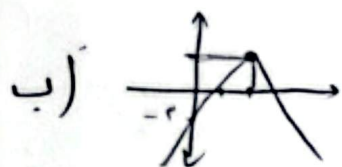
1.5

جواب قسمت ب؟

الف) Max / 1

ب) $y = -x^2 + 4x - 3$

این منحنی محدب است و در راسش حلقه می زند



$-x^2 + 4x - 3 = 0$
 $\begin{cases} x_1 = 1 \\ x_2 = 3 \end{cases}$

2

الف) $S^2 - 2P = \left(\frac{-b}{a}\right)^2 - 2\left(\frac{c}{a}\right) = \left(\frac{4}{1}\right)^2 - 2\left(\frac{-3}{1}\right) = 16 + 6 = 22$

ب) $S^3 - 3SP = \left(\frac{-b}{a}\right)^3 - 3\left(\frac{-b}{a}\right)\left(\frac{c}{a}\right) = \left(\frac{4}{1}\right)^3 - 3(4)(-3) = 64 + 36 = 100$