

19, 18

الف) $x^2 - 6x + 8 = 0$

$x^2 - 6x + 9 - 9 + 8 = 0$

$(x-3)^2 - 1 + 8 = 0$

$(x-3)^2 - 1 = 0$

$(x-3)^2 = 1$

$x-3 = \pm 1$

$x = 3 \pm 1 \Rightarrow x = 3+1=4, x = 3-1=2$

✓

$x^2 + 11x + 10 = 0$

$x^2 + 11x + 10 = 10 + 10 = 20$

$(x+5)^2 - 10 + 10 = 0$

$(x+5)^2 - 10 = 0$

$x+5 = \pm \sqrt{10}$

$x = -5 \pm \sqrt{10} \Rightarrow x = -5 + \sqrt{10}, x = -5 - \sqrt{10}$

الف) $x^2 - 8x + 15 = 0$

$x^2 - 8x + 16 - 16 + 15 = 0$

$(x-4)^2 - 1 = 0$

$x^2 - 8x + 16 = 0$

$(x-4)^2 = 1 \Rightarrow x-4 = \pm 1 \Rightarrow x = 4 \pm 1 \Rightarrow x = 5, x = 3$

✓

الف) $x^2 - 3x - 5 = 0$

$-(3x(1x-5))$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{3 \pm \sqrt{9 + 20}}{2} = \frac{3 \pm \sqrt{29}}{2}$

$x = \frac{3 \pm \sqrt{29}}{2}$

$x = \frac{3 \pm \sqrt{29}}{2}$

$x^2 - 3x - 5 = 0$

$x = \frac{3 \pm \sqrt{14 + 1}}{2} = \frac{3 \pm \sqrt{15}}{2} \Rightarrow x = \frac{3 \pm \sqrt{15}}{2}$

الف) $x^2 - 3x + 2 = 0$

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

$(x-2)(x-1) = 0 \Rightarrow x = 2, x = 1$

الف) $x^2 + x - 12 = 0$

$x^2 + x - 12 = 0$

$(x-3)(x+4) = 0 \Rightarrow x = 3, x = -4$

✓

الف) $5x^2 - 12x + 7 = 0$

$5x^2 - 12x + 7 = 0$

$5x^2 - 12x + 7 = 0$

$(x-1)(x-7) = 0 \Rightarrow x = 1, x = 7$

✓

$5x^2 - 12x + 7 = 0$

$5x^2 - 12x + 7 = 0$

$(x-1)(x-7) = 0 \Rightarrow x = 1, x = 7$

الف) $-3x^2 + 10x - 1 = 0$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-10 \pm \sqrt{100 - 12}}{-6} = \frac{-10 \pm \sqrt{88}}{-6}$

ب) $2x^2 - 4x + 1 = 0$

$x = \frac{4 \pm \sqrt{16 - 8}}{4} = \frac{4 \pm \sqrt{8}}{4} = \frac{4 \pm 2\sqrt{2}}{4} = \frac{2 \pm \sqrt{2}}{2}$

ج) $2x^2 - 4x + 1 = 0$

$x = \frac{4 \pm \sqrt{16 - 8}}{4} = \frac{4 \pm \sqrt{8}}{4} = \frac{4 \pm 2\sqrt{2}}{4} = \frac{2 \pm \sqrt{2}}{2}$

دو جواب واقعی

الف) $\Delta > 0 \Rightarrow$ دو جواب متمایز

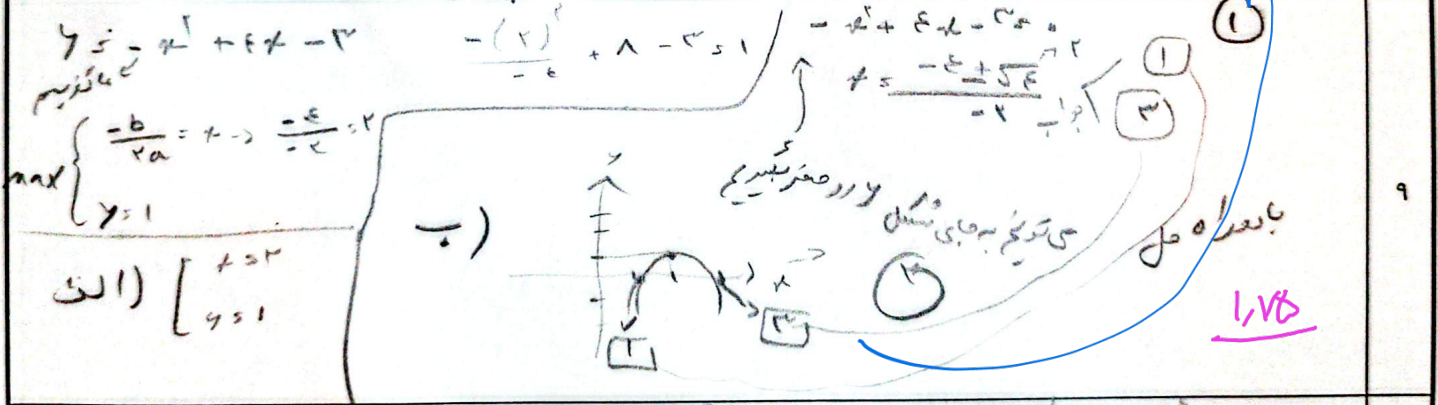
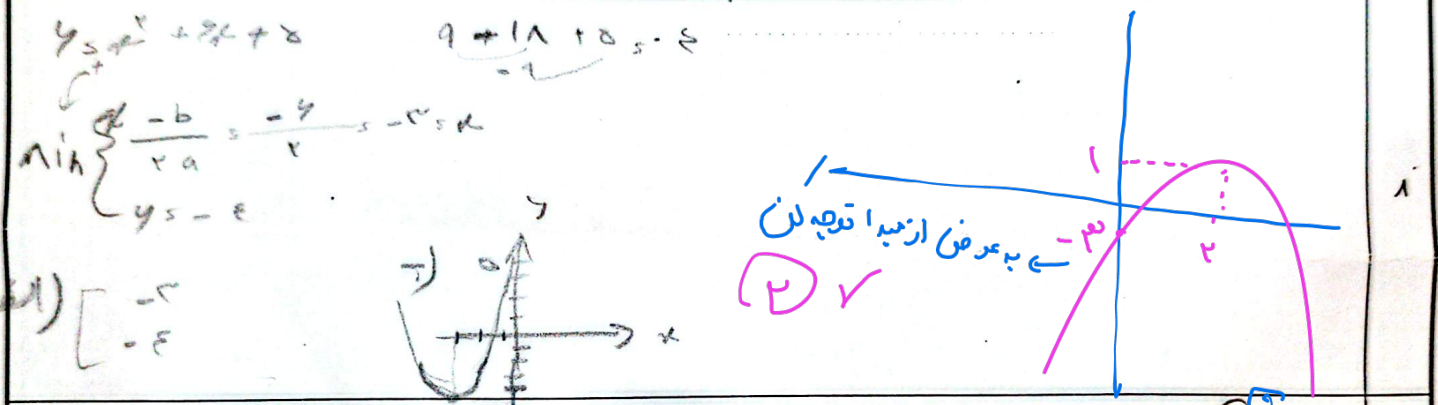
$\Delta = (-c)^2 - 4(a)(a)$

$\Delta = 9 - 4a > 0 \Rightarrow 9 > 4a \Rightarrow a < \frac{9}{4} = 2.25$

ب) $\Delta < 0$

$9 - 4a < 0 \Rightarrow 9 < 4a \Rightarrow a > \frac{9}{4} = 2.25$

دو جواب مجازی



الف) $x^2 - 3x + 2 = 0$

$x = \frac{3 \pm \sqrt{9 - 8}}{2} = \frac{3 \pm 1}{2}$

ب) $x^2 - 3x + 2 = 0$

$x = \frac{3 \pm \sqrt{9 - 8}}{2} = \frac{3 \pm 1}{2}$

ج) $x^2 - 3x + 2 = 0$

$x = \frac{3 \pm \sqrt{9 - 8}}{2} = \frac{3 \pm 1}{2}$

دو جواب متمایز