

الف) $x^2 - 9x + 14 = 0$

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

$(x-3)^2 = 1$

$x-3 = \pm 1$

$x-3 = -1 \rightarrow x=2$
 $x-3 = +1 = 4$

ب) $x^2 + 11x + 17 = 0$

$(x+4)^2 - 9 = 0$

$(x+4)^2 = 9$

$x+4 = \pm 3$

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

1

الف) $x^2 - 5x + 6 = 0$

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

$x=2$
 $x=3$

ب) $x^2 - 5x - 14 = 0$

$(x+2)(x-7) = 0$

$x=7$

$x=-2$

2

الف) $x^2 - 3x - 5 = 0$

$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm \sqrt{9+20}}{2}$

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

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

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

ب) $2x^2 - 5x + \frac{1}{2} = 0$

$x = \frac{-b \pm \sqrt{\Delta}}{2a}$

$= \frac{5 \pm \sqrt{25-2}}{4}$

$x = \frac{5+\sqrt{23}}{4}$ $x = \frac{5-\sqrt{23}}{4}$

3

الف) $x^2 - 2x + 2 = 0$

$2+1-2=1$

$x=1$

$x = \frac{c}{a} = \frac{2}{1} = 2$

ب) $5x^2 + x - 3 = 0$

$5-3=2$

$x=-1$

$x = \frac{-c}{a} = \frac{3}{5}$

4

الف) $5x^2 - 12x + 7 = 0$

$x^2 - 12x + 20 = 0$

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

$x = \frac{12}{5}$

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

ب) $3x^2 - 6x + 3 = 0$

$x^2 - 6x + 21 = 0$

$(x-3)(x-7) = 0$

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

$x = \frac{7}{3}$

5

الف) $-2m^2 + 5m - 1 = 0$
 $m = \frac{-5 \pm \sqrt{25 - 12}}{2 \times (-2)}$
 $m = \frac{-5 \pm \sqrt{13}}{-4}$
 $m = \frac{-5 - \sqrt{13}}{-4}$

ب) $2m^2 - m + 2 = 0$
 $m = \frac{1 \pm \sqrt{1 - 16}}{4}$
 $m = \frac{1 \pm \sqrt{-15}}{4}$
 جواب: حقیقی ندارد

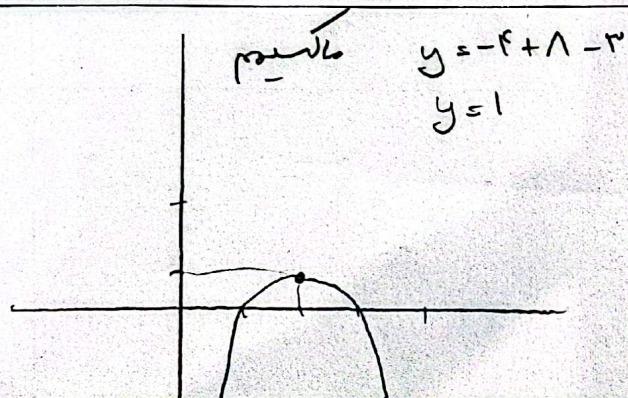
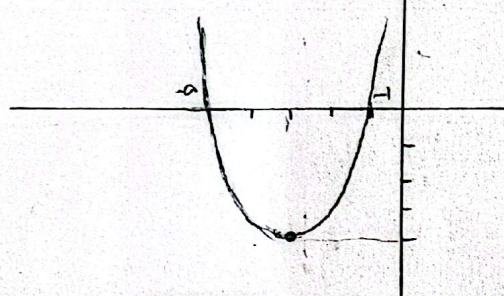
ج) $2m^2 - 4m + 2 = 0$
 $m = \frac{4 \pm \sqrt{16 - 16}}{4}$
 $m = \frac{4 \pm 0}{4}$
 $m = 1$
 جواب: حقیقی ندارد

$\Delta = b^2 - 4ac$
 $0 > 9 - 16a$
 $a > \frac{9}{16}$
 $\Delta = b^2 - 4ac$
 $0 < 9 - 16a$
 $a < \frac{9}{16}$

$\Delta < 0$ (ج)
 $\Delta = b^2 - 4ac$
 $\Delta = 9 - 16a$
 $\Delta > 0$
 $9 - 16a > 0$
 $a < \frac{9}{16}$

$\Delta > 0$ (الف)
 $\Delta = b^2 - 4ac$
 $0 = 9 - 16a$
 $16a = 9$
 $a = \frac{9}{16}$

الف) $y = 9 + 4x + 4$
 $y = -x^2$
 $x = \frac{-b}{2a} = \frac{-4}{2} = -2$
 $y = -(-2)^2 = -4$



الف) $x = \frac{-b}{2a} = \frac{-4}{-2} = 2$
 $y = -2^2 + 4 \times 2 - 3 = 1$
 $x = \frac{-b}{2a} = \frac{-4}{-2} = 2$

$S = \frac{2 + \sqrt{17} + 2 - \sqrt{17}}{2} = 2$
 $P = \frac{(2 + \sqrt{17})(2 - \sqrt{17})}{2} = \frac{4 - 17}{2} = -\frac{13}{2}$
 $S^2 - 2P = 9 - (2 \times (-\frac{13}{2})) = 9 - (-13) = 22$
 $\therefore S^2 - 2SP = 22 - 2 \times 2 \times (-\frac{13}{2}) = 22 - (-13) = 35$

الف) $2x^2 - 3x - 2 = 0$
 $x = \frac{3 \pm \sqrt{9 + 16}}{4}$
 $x = \frac{3 \pm 5}{4}$
 $x = \frac{3 + 5}{4} = 2$
 $x = \frac{3 - 5}{4} = -\frac{1}{2}$