

الف) $x^2 - 4x + 8 = 0 \xrightarrow{+4} x^2 - 4x + 12 = 4 \rightarrow (x-2)^2 = 1 \rightarrow x-2 = 1 \rightarrow \boxed{x=3}$
 $x-2 = -1 \rightarrow \boxed{x=1}$

ب) $x^2 + 8x + 15 = 0 \xrightarrow{+9} x^2 + 8x + 14 = -1 \rightarrow (x+4)^2 = 9$

$(x+4)(x+4) = 9$

$x+4 = 3 \rightarrow \boxed{x=-1}$
 $x+4 = -3 \rightarrow \boxed{x=-7}$

الف) $x^2 - 5x + 4 = 0 \rightarrow (x-4)(x-1) = 0 \Rightarrow \boxed{x=4} \quad \boxed{x=1}$

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

الف) $x^2 - 3x - 4 = 0 \rightarrow \frac{-(-3) \pm \sqrt{(-3)^2 - (1 \times -4)}}{2} = \frac{3 \pm \sqrt{9+4}}{2} = \frac{3 \pm \sqrt{13}}{2}$
 $x = \frac{3 + \sqrt{13}}{2}$
 $x = \frac{3 - \sqrt{13}}{2}$

ب) $2x^2 - 5x + \frac{1}{2} = 0 \rightarrow \frac{-(-5) \pm \sqrt{(-5)^2 - (2 \times \frac{1}{2})}}{4} = \frac{5 \pm \sqrt{25-1}}{4} = \frac{5 \pm \sqrt{24}}{4}$
 $x = \frac{5 + \sqrt{24}}{4}$
 $x = \frac{5 - \sqrt{24}}{4}$

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

ب) $5x^2 + x - 3 = 0 \rightarrow (5x+3)(x-1) = 0$
 $\boxed{x=-\frac{3}{5}} \quad \boxed{x=1}$

الف) $x^2 - 12 + 7 = 0 \rightarrow x^2 - 12 + 5 = 0 \rightarrow (x-5)(x-7) = 0$
 $x = \frac{5}{1} \quad x = \frac{7}{1} \rightarrow \boxed{x=5} \quad \boxed{x=7}$

ب) $3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 = 0$

$(x-3)(x-7) = 0 \rightarrow \boxed{x=\frac{3}{1}=3} \quad \boxed{x=\frac{7}{1}=7}$

$$\text{الف) } -3m^2 + am - 1 = 0 \quad \Delta = \frac{a^2 - 4(-3)(-1)}{-4} = \frac{a^2 - 12}{-4} = \frac{a^2 - 12}{-4} = \frac{a^2 - 12}{-4} = \frac{a^2 - 12}{-4}$$

$$\text{ب) } 2x^2 - m + 2 = 0 \quad \Delta = \frac{1 \pm \sqrt{1 - 14}}{2 \times 2} \rightarrow \Delta = -10 \Rightarrow \text{فاقد حقيقي}$$

$$\text{ج) } 2x^2 - 5m + 2 = 0 \quad \Delta = \frac{25 \pm \sqrt{25 - 16}}{4} = 0 \quad m = \frac{5 \pm 0}{2} = 1 \quad n = \frac{5 - 0}{2} = 1 \quad \boxed{n=1}$$

$$\text{د) } 2x^2 - m + 1 = 0 \quad \Delta = \frac{1 \pm \sqrt{1 - 8}}{2} = 0 \quad \Delta = -7 \Rightarrow \text{فاقد حقيقي}$$

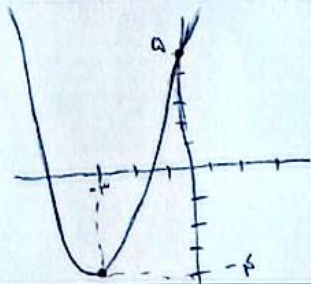
$$\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow 9 - 12 > 0 \rightarrow 9 > 12 \rightarrow \boxed{c < \frac{9}{4}} \quad \text{الف)}$$

$$\Delta = 0 \rightarrow b^2 - 4ac = 0 \rightarrow 9 - 12 = 0 \rightarrow 12 = 9 \rightarrow \boxed{c = \frac{9}{4}} \quad \text{ب)}$$

$$\Delta < 0 \rightarrow b^2 - 4ac < 0 \rightarrow 9 - 12 < 0 \rightarrow 9 < 12 \rightarrow \boxed{\frac{9}{4} < c} \quad \text{ج)}$$

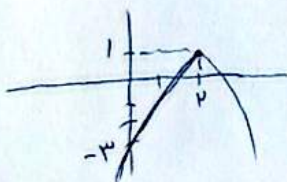
$$\Delta \geq 0 \rightarrow b^2 - 4ac \geq 0 \rightarrow 9 - 12 \geq 0 \rightarrow 9 \geq 12 \rightarrow \boxed{\frac{9}{4} \geq c} \quad \text{د)}$$

$$x = -\frac{b}{2a} \rightarrow -\frac{9}{2} = -3 \quad y = (-3)^2 + 4(-3) + \Delta = -5 \quad \text{الف) منبسط دار}$$



ب)

$$x = -\frac{b}{2a} \rightarrow -\frac{5}{-2} = 2.5 \quad y = -4 + 1 - 3 = -6 \quad \text{الف)}$$



ب)

$$\begin{vmatrix} 1 & -1 \\ 1 & 0 \end{vmatrix} \quad \begin{vmatrix} 1 & -3 \\ 1 & 0 \end{vmatrix} \quad \begin{aligned} -m^2 + 4m - 3 &= 0 \rightarrow m^2 - 4m + 3 = 0 \\ &= (m+3)(m+1) \rightarrow m = -3 \quad m = -1 \end{aligned}$$

$$\text{الف) } 5^2 - 2p \rightarrow (-3)^2 - 2 \times (-2) = 9 + 4 = 13$$

$$\text{ب) } 5^2 - 3p \rightarrow (-3)^2 - (2 \times (-2) \times (-2)) = -27 - 12 = -39$$