

Pag 943 n 453

$$(a+1)x^2 - 2(a-1)x + 2a - 5 = 0 \quad a \neq -1$$

d) una radice $\bar{x} = -2$

$$(a+1)(-2)^2 - 2(a-1)(-2) + 2a - 5 = 0$$

$$4a + 4 + 4a - 4 + 2a - 5 = 0$$

$$10a = 5 \quad a = \frac{1}{2}$$

$$f) \quad x_1^2 + x_2^2 = \frac{1}{2}$$

$$x_1 + x_2 = -\frac{b}{a} = \frac{2(a-1)}{a+1}$$

$$(x_1 + x_2)^2 - 2x_1x_2 = \frac{1}{2}$$

$$x_1x_2 = \frac{c}{a} = \frac{2a-5}{a+1}$$

$$\left[\frac{2(a-1)}{a+1} \right]^2 - 2 \frac{2a-5}{a+1} = \frac{1}{2}$$

$$\frac{8(a-1)^2 - 2(a+1)(2a-5)}{2(a+1)^2} = \frac{(a+1)^2}{2(a+1)^2}$$

$$8a^2 + 8 - 16a - 8a^2 + 12a + 20 = a^2 + 1 + 2a$$

$$a^2 + 6a - 24 = 0$$

$$(a+9)(a-3) = 0 \quad \leadsto \quad a=3, \quad a=-9$$

$$\Delta \geq 0$$

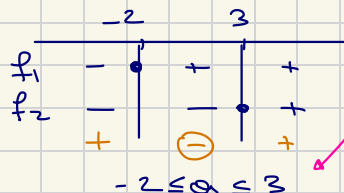
$$(a-1)^2 - (a+1)(2a-5) \geq 0$$

$$a^2 - 2a + 1 - (2a^2 - 5a + 2a - 5) \geq 0$$

$$-a^2 + a + 6 \geq 0$$

$$a^2 - a - 6 \leq 0$$

$$(a-3)(a+2) \leq 0$$



non accettabile

$$454 \quad kx^2 + 2(k-1)x + k-3 = 0 \quad k \neq 0$$

$$d) \quad x_1 = \frac{x_2}{2} \quad \leadsto \quad \frac{x_1}{x_2} = \frac{1}{2} \quad \text{dunque} \quad \frac{x_2}{x_1} = 2$$

$$\frac{x_1}{x_2} + \frac{x_2}{x_1} = \frac{1}{2} + 2$$

$$\frac{x_1^2 + x_2^2}{x_1 x_2} = \frac{5}{2}$$

$$\frac{(x_1 + x_2)^2 - 2x_1 x_2}{x_1 x_2} = \frac{5}{2}$$

$$\frac{(x_1 + x_2)^2}{x_1 x_2} - \frac{2x_1 x_2}{x_1 x_2} = \frac{5}{2}$$

$$x_1 + x_2 = -\frac{b}{a} = -\frac{2(k-1)}{k}$$

$$\frac{(x_1 + x_2)^2}{x_1 x_2} = \frac{9}{2}$$

$$x_1 x_2 = \frac{c}{a} = \frac{k-3}{k}$$

$$2 \left(-\frac{2(k-1)}{k} \right)^2 = 9 \frac{k-3}{k}$$

$$\frac{8(k^2 - 2k + 1)}{k^2} = \frac{9(k-3)k}{k^2}$$

$$8k^2 - 16k + 8 = 9k^2 - 27k$$

$$k^2 - 11k - 8 = 0$$

$$\Delta = 11^2 + 4 \cdot 8 \cdot 1 = 121 + 32 = 153 = 17 \cdot 3^2$$

$$\sqrt{\Delta} = 3\sqrt{17}$$

$$k_1/k_2 = \frac{11 \pm 3\sqrt{17}}{2}$$

$$459 \quad (f+2)x^2 + 2fx + 1 = 0$$

$$f \neq -2$$

$$d) \quad |x_1 - x_2| = 6$$

$$x_1 + x_2 = -\frac{b}{a} = -\frac{2f}{f+2}$$

$$\underline{d.1}: \quad x_1 - x_2 = 6$$

$$x_1 x_2 = \frac{c}{a} = \frac{1}{f+2}$$

$$x_1 - x_2 = 6$$

$$x_2 - x_1 = -6$$

$$(x_1 - x_2)(x_2 - x_1) = -36$$

$$x_1 x_2 - x_1^2 - x_2^2 + x_1 x_2 = -36$$

$$2x_1 x_2 - (x_1^2 + x_2^2) = -36$$

$$2x_1 x_2 - [(x_1 + x_2)^2 - 2x_1 x_2] = -36$$

$$-(x_1 + x_2)^2 + 4x_1 x_2 = -36$$

$$-\left(-\frac{2f}{f+2}\right)^2 + 4\frac{1}{f+2} = -36$$

$$-\frac{4f^2}{(\cancel{f+2})^2} + \frac{4(\cancel{f+2})}{(\cancel{f+2})^2} = \frac{-36(\cancel{f+2})^2}{(\cancel{f+2})^2}$$

$$-4f^2 + 4f + 8 = -36f^2 - 144 - 144f$$

$$32f^2 + 148f + 152 = 0$$

$$8f^2 + 37f + 38 = 0$$

$$\begin{aligned} \Delta &= 37^2 - 4 \cdot 8 \cdot 38 \stackrel{32 \cdot 38}{=} (40-3)^2 - (35-3)(35+3) \\ &= 1600 + 9 - 240 - (1225 - 9) \\ &= 375 + 9 - 240 + 9 \\ &= 135 + 18 = 153 \end{aligned}$$