

Pag 816 n 504 Semplificare

$$\frac{x(x^2-3)}{x^3-3x} \cdot \frac{\sqrt{14}}{\sqrt{21}x - \sqrt{7}x^2}$$

$$= \frac{x(x-\sqrt{3})(x+\sqrt{3})}{(x-2\sqrt{3})(x+\sqrt{3})} \cdot \frac{\sqrt{4} \cdot \sqrt{2}}{\sqrt{4} \cdot \sqrt{3} \cdot x}$$

$$= \frac{\sqrt{2}}{x-2\sqrt{3}} \cdot \frac{x+2\sqrt{3}}{x+2\sqrt{3}} = \frac{\sqrt{2}(x+2\sqrt{3})}{x^2-12}$$

$$x^2-4$$

$$(x+2)(x-2)$$

$$(x+\sqrt{4})(x-\sqrt{4})$$

$$\alpha + \beta = -\sqrt{3}$$

$$\alpha\beta = -6$$

$$\alpha = -3\sqrt{3} \quad \beta = 2\sqrt{3} \quad \text{No}$$

$$\alpha = -2\sqrt{3} \quad \beta = \sqrt{3}$$

n 508  $\frac{x - \sqrt{x^2-1}}{x + \sqrt{x^2-1}} \cdot \frac{(x-\sqrt{x^2-1})}{(x+\sqrt{x^2-1})} + 2x\sqrt{x^2-1} + \frac{\sqrt{x}}{\sqrt{x}} x^2 (1-2\sqrt{x})$

(1) Svolgo subito den. comuni

(2) Razionalizzo e poi faccio i conti

$$\frac{x^2 + (x^2-1) - 2x\sqrt{x^2-1}}{x^2 - (x^2-1)} + 2x\sqrt{x^2-1} + \frac{x^{\frac{1}{2}}\sqrt{x}}{x} (1-2\sqrt{x})$$

$$\frac{x^2 - (x^2-1)}{x^2 - x^2 + 1}$$

$$\frac{2x^2 - 2x\sqrt{x^2-1} - 1 + 2x\sqrt{x^2-1} + x\sqrt{x} - 2x^2}{1} = x\sqrt{x} - 1$$

509

$$\left( \frac{\sqrt{x+4}}{\sqrt{x} + \sqrt{x+4}} - \sqrt{x^2+x} \right) \left( x+1 + 2\sqrt{x(x+1)} \right)$$

Raz:  $\sqrt{x} - \sqrt{x+1}$

$$\left( \frac{\sqrt{x^2+x} - (x+1)}{x - (x+1) - 1} - \sqrt{x^2+x} \right) \left( x+1 + 2\sqrt{x^2+x} \right)$$

$$(x+1 - 2\sqrt{x^2+x}) (x+1 + 2\sqrt{x^2+x})$$

$$(x+1)^2 - 4(x^2+x) = x^2+2x+1 - 4x^2-4x = \boxed{-3x^2-2x+1}$$

Pag 819 n 561

$$\begin{cases} \sqrt{3}x - y = 2 \\ \sqrt{3}x - 3y = 0 \end{cases}$$

Riduzione I-II

$$2y = 2 \rightsquigarrow y = 1$$

$$\sqrt{3}x - 1 = 2$$

$$\sqrt{3}x = 3 \quad x = \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$P = (\sqrt{3}, 1)$$

Confronto

$$\begin{cases} \sqrt{3}x = 2+y \\ \sqrt{3}x = 3y \end{cases}$$

$$2+y = 3y \rightsquigarrow y = 1$$

$$\sqrt{3}x - 1 = 2 \rightsquigarrow x = \sqrt{3}$$

$$P = (\sqrt{3}, 1)$$

Cramer

$$\text{Det}(D) = \text{Det} \begin{pmatrix} \sqrt{3} & -1 \\ \sqrt{3} & -3 \end{pmatrix} = -3\sqrt{3} + \sqrt{3} = -2\sqrt{3}$$

$$\text{Det}(D_x) = \text{Det} \begin{pmatrix} 2 & -1 \\ 0 & -3 \end{pmatrix} = -6$$

$$\text{Det}(D_y) = \text{Det} \begin{pmatrix} \sqrt{3} & 2 \\ \sqrt{3} & 0 \end{pmatrix} = -2\sqrt{3}$$

$$x = \frac{\text{Det}(D_x)}{\text{Det}(D)} = \frac{-6}{-2\sqrt{3}} = \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$y = \frac{\text{Det}(D_y)}{\text{Det}(D)} = \frac{-2\sqrt{3}}{-2\sqrt{3}} = 1$$

$$P = (\sqrt{3}, 1)$$

Sostituzione

$$\begin{cases} y = \sqrt{3}x - 2 \\ \sqrt{3}x - 3(\sqrt{3}x - 2) = 0 \end{cases}$$

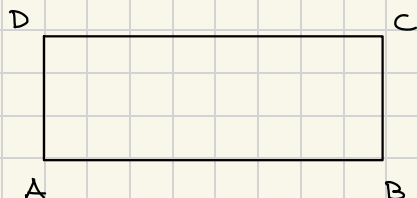
$$\rightarrow \sqrt{3}x - 3\sqrt{3}x + 6 = 0$$

$$y = \sqrt{3} \cdot \sqrt{3} - 2 = 3 - 2 = 1$$

$$-2\sqrt{3}x = -6 \rightsquigarrow x = \frac{-6}{-2\sqrt{3}} = \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$P = (\sqrt{3}, 1)$$

n 556 :



$$AB = 3\sqrt{5} + 1$$

$$AB \cdot BC = 17 + 4\sqrt{5}$$

Perimetro e Area  
del rettangolo  
aumentato.

$$\frac{AB + x}{BC + x + 2} = \frac{\sqrt{5}}{2}$$

$$\triangleright BC = \frac{17 + 4\sqrt{5}}{3\sqrt{5} + 1} \cdot \frac{3\sqrt{5} - 1}{3\sqrt{5} - 1} = \frac{51\sqrt{5} + 105 - 17 - 7\sqrt{5}}{44} = \frac{44(2 + \sqrt{5})}{44} = 2 + \sqrt{5}$$

$$\triangleright \frac{3\sqrt{5} + 1 + x}{\underbrace{2 + \sqrt{5} + x + 2}_{x + \sqrt{5} + 4}} = \frac{\sqrt{5}}{2} \quad \Rightarrow \quad \frac{6\sqrt{5} + 2 + 2x}{2(x + \sqrt{5} + 4)} = \frac{\sqrt{5}x + 5 + 4\sqrt{5}}{2(x + \sqrt{5} + 4)}$$

$$2\sqrt{5} - 3 = x(\sqrt{5} - 2)$$

C.E.  $x + \sqrt{5} + 4 \neq 0$   
 $x \neq -\sqrt{5} - 4$

$$x = \frac{2\sqrt{5} - 3}{\sqrt{5} - 2} \cdot \frac{\sqrt{5} + 2}{\sqrt{5} + 2} = -10 - 3\sqrt{5} + 4\sqrt{5} - 6 = 4 + \sqrt{5}$$

$$AB + x = 3\sqrt{5} + 1 + 4 + \sqrt{5} = 4\sqrt{5} + 5 = b$$

$$BC + x + 2 = 2 + \sqrt{5} + 4 + \sqrt{5} + 2 = 2\sqrt{5} + 8 = h$$

$$P = 2(b + h) = 2(4\sqrt{5} + 5 + 2\sqrt{5} + 8) = 2(13 + 6\sqrt{5})$$

$$A = b \cdot h = (4\sqrt{5} + 5)(2\sqrt{5} + 8) = 40 + 10\sqrt{5} + 32\sqrt{5} + 40 = 80 + 42\sqrt{5}$$

562: 
$$\begin{cases} 2x + \sqrt{3}y = -2 \\ x - y - 1 = \sqrt{3} \end{cases}$$

Sostituzione:

$$y = x - 1 - \sqrt{3}$$

$$\cancel{\sqrt{3} - 1 - y - 1 = \sqrt{3}}$$

$$\leadsto y = -2$$

$$2x + \sqrt{3}(x - 1 - \sqrt{3}) = -2$$

$$P = (\sqrt{3} - 1, -2)$$

$$2x + \sqrt{3}x - \sqrt{3} - 3 = -2$$

$$2x + \sqrt{3}x = 1 + \sqrt{3}$$

$$x(2 + \sqrt{3}) = 1 + \sqrt{3} \quad \leadsto$$

$$x = \frac{1 + \sqrt{3}}{2 + \sqrt{3}} \cdot \frac{2 - \sqrt{3}}{2 - \sqrt{3}} = \frac{2 - 3 - \sqrt{3} + 2\sqrt{3}}{4 - 3} = \sqrt{3} - 1$$