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$$= x+1 \quad = 1-x .$$

$$\frac{13}{x^2-1} - \frac{1}{x^2-1} = \frac{5x-3}{x^2-1} .$$

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

$$(x^2-1)(2x+1) = (2x+1)^2$$

$$\mu \quad \mu \quad \mu \quad 2 \quad +4 = 4+ \quad 2$$

$$\| \quad | -3 | + x^2 + 4 = 4x$$

$$^2 = | \quad | .$$

$$\mu \quad \mu \quad +3 = 16 \quad 2.$$

$$(x+ \quad )^2 - (x+ \quad )^2 = ( \quad + \quad ) ( \quad - \quad ) ,$$

$$\mu \quad \mu \quad , \quad .$$

$$) \frac{13}{x^2-1} - \frac{1}{x^2-1} = \frac{5x-3}{x^2-1} \Leftrightarrow \frac{13}{x+1} - \frac{1}{1-x} = \frac{5x-3}{x^2-1} \Leftrightarrow \frac{13}{x+1} + \frac{1}{x-1} = \frac{5x-3}{(x+1)(x-1)} \quad (1)$$

$$\text{E.K. } \cdot = (x-1)(x+1) \neq 0 \Leftrightarrow x \neq 1 \quad x \neq -1$$

$$(1) \Leftrightarrow \frac{13}{\cancel{x+1}}(x-1) + (x+1)\frac{1}{\cancel{x-1}} = \frac{(x+1)(x-1)}{\cancel{(x+1)(x-1)}} \frac{5x-3}{\cancel{(x+1)(x-1)}} \Leftrightarrow$$

$$13x - 13 + x + 1 = 5x - 3 \Leftrightarrow 13x + x - 5x = 13 - 1 - 3 \Leftrightarrow 9x = 9 \Leftrightarrow x = 1$$

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

$$(x-1=0 \Leftrightarrow x=1) \quad (x^2+1=0 \Leftrightarrow x^2=-1 \quad )$$

$$) (x^2-1)(2x+1) = (2x+1)^2 \Leftrightarrow (x-1)(x+1)(2x+1) = (x+1)(2x+1)^2 \Leftrightarrow$$

$$(x-1)(x+1)(2x+1) - (x+1)(2x+1)^2 = 0 \Leftrightarrow (x+1)(2x+1)[(x-1) - (2x+1)] = 0 \Leftrightarrow$$

$$(x+1)(2x+1)(x-1-2x-1) = 0 \Leftrightarrow (x+1)(2x+1)(-x-2) = 0 \Leftrightarrow$$

$$(x+1=0 \Leftrightarrow x=-1) \quad \left( 2x+1=0 \Leftrightarrow 2x=-1 \Leftrightarrow x=-\frac{1}{2} \right) \quad (-x-2=0 \Leftrightarrow -2=x)$$

$$) 2 + 4 = 4 + ^2 \Leftrightarrow 2(1-x) + 4(x+1) = 4 + ^2 \Leftrightarrow$$

$$2 - 2x + 4x + 4 = 4 + ^2 \Leftrightarrow -2x + 4x = ^2 - 2 \Leftrightarrow -2(-2)x = (-2)(2)$$

$$(2)$$

$$-2(-2)=0 \Leftrightarrow -2=0 \Leftrightarrow =2 \quad (-2)=0 \Leftrightarrow =0 \quad (-2=0 \Leftrightarrow =2)$$

$$=2$$

$$) \left\| \begin{array}{l} -3 \\ +x^2+4=4x \end{array} \right\| \Leftrightarrow \left\| \begin{array}{l} x+1 \\ -3 \end{array} \right\| + x^2 - 4x + 4 = 0 \Leftrightarrow \left\| \begin{array}{l} x+1 \\ -3 \end{array} \right\| + (x-2)^2 = 0 \quad (3)$$

$$\left\| \begin{array}{l} x+1 \\ -3 \end{array} \right\| \geq 0 \quad (x-2)^2 \geq 0, \quad (3) \quad \mu \quad :$$

$$\left\| \begin{array}{l} x+1 \\ -3 \end{array} \right\| = 0 \Leftrightarrow \left| \begin{array}{l} x+1 \\ -3 \end{array} \right| = 0 \Leftrightarrow \left| \begin{array}{l} x+1 \\ -3 \end{array} \right| = 3 \Leftrightarrow x+1 = \pm 3 \Leftrightarrow$$

$$(x+1=3 \Leftrightarrow x=2) \quad (x+1=-3 \Leftrightarrow x=-4) \quad (x-2)^2 = 0 \Leftrightarrow x-2=0 \Leftrightarrow x=2.$$

$$x=2$$

$$) ^2 = \left| \right| \Leftrightarrow \left| \right|^2 - \left| \right| = 0 \Leftrightarrow \left| \left| \right| - 1 \right| = 0 \Leftrightarrow \left| \right| = 0 \Leftrightarrow = 0 \Leftrightarrow x+1=0 \Leftrightarrow x=-1)$$

$$\left( \left| \right| = 1 \Leftrightarrow = \pm 1 \Leftrightarrow ( = 1 \Leftrightarrow x+1=1 \Leftrightarrow x=0) \quad ( = -1 \Leftrightarrow x+1=-1 \Leftrightarrow x=-2) \right)$$

$$) + 3 = 16 \Leftrightarrow (1-x) + 3(x+1) = 16 \quad (4)$$

$$(4) \quad 2 \quad : \quad (1-2) + 3(2+1) = 16 \Leftrightarrow - + 9 = 16 \Leftrightarrow 8 = 16 \Leftrightarrow = 2$$

$$) (x+ )^2 - (x+ )^2 = ( + ) ( - ) \Leftrightarrow \cancel{x^2} + 2x + ^2 - \cancel{x^2} - 2x - ^2 = (\cancel{x} + 1 + 1 - \cancel{x}) ( - ) \Leftrightarrow$$

$$2( - )x + ^2 - ^2 = 2^2 - 2 \Leftrightarrow 2( - )x = ^2 + ^2 - 2 \Leftrightarrow 2( - )x = ( - )^2 \quad (4)$$

$$- \neq 0 \Leftrightarrow \neq , \quad (4) \quad : \quad x = \frac{( - )^2}{2( - )} = \frac{-}{2}$$

$$- = 0 \Leftrightarrow = , \quad (4) \quad 0 \cdot x = 0$$

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θεμάτων και ασκήσεων

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