

$$1) \quad \frac{3x+2}{2\sqrt{x-1} + 3\sqrt{3-2x}} \cdot \frac{2\sqrt{x-1} - 3\sqrt{3-2x}}{2\sqrt{x-1} - 3\sqrt{3-2x}}$$

$$\frac{(3x+2) \cdot (2\sqrt{x-1} - 3\sqrt{3-2x})}{4(x-1) - 9(3-2x)}$$

$$\frac{(3x+2) \cdot (2\sqrt{x-1} - 3\sqrt{3-2x})}{22x - 31}$$



$$f(x) = \frac{3x+2}{2\sqrt{x-1} - 3\sqrt{3-2x}} = x \in [1; 1.5]_{1/2} \setminus \{3/2\}$$

$x \geq 1$ (under $\sqrt{x-1}$)
 $x \leq 3/2$ (under $\sqrt{3-2x}$)
 $\neq 0$ (under denominator)
 $\frac{K}{0}$ (under $\sqrt{<0>}$)
 $L_n (\leq 0)$

$$2\sqrt{x-1} - 3\sqrt{3-2x} = 0$$

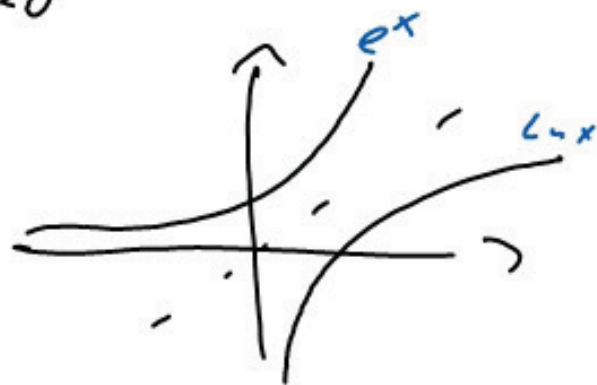
$$2\sqrt{x-1} = 3\sqrt{3-2x}$$

$$4 \cdot (x-1) = 9 \cdot (3-2x)$$

$$4x - 4 = 27 - 18x$$

$$22x = 31$$

$$x = 31/22$$



$$2) \left. \begin{aligned} \frac{3i-2}{i-2} \cdot \frac{i+2}{i+2} &= \frac{-7+4i}{-5} \\ \frac{2i}{3+4i} \cdot \frac{3-4i}{3-4i} &= \frac{6i+8}{25} \end{aligned} \right\} \frac{35-70i-(6i+8)}{25}$$

$$\frac{27}{25} - \frac{26}{25}i$$

$$3) 1(2x)^5 + 5(2x)^4 \left(\frac{1}{5x}\right)^1 + 10(2x)^3 \left(\frac{1}{5x}\right)^2 + 10(2x)^2 \left(\frac{1}{5x}\right)^3 + 5(2x) \left(\frac{1}{5x}\right)^4 + 1\left(\frac{1}{5x}\right)^5$$

$$32x^5 + 40x^3 + 20x + \frac{5}{x} + \frac{1}{8x^3} + \frac{1}{32x^5}$$

$$f(x) = x^3 + 3x^2 - 4x - 12$$

$$S_y = (0 | -12)$$

$$\overbrace{(x^3 + 3x^2 - 4x - 12)(x-2)}^{\theta} = \underbrace{x^2 + 5x + 6}$$

$$- (x^3 - 2x^2)$$

$$\hline 5x^2 - 4x - 12$$

$$- (5x^2 - 10x)$$

$$\hline 6x - 12$$

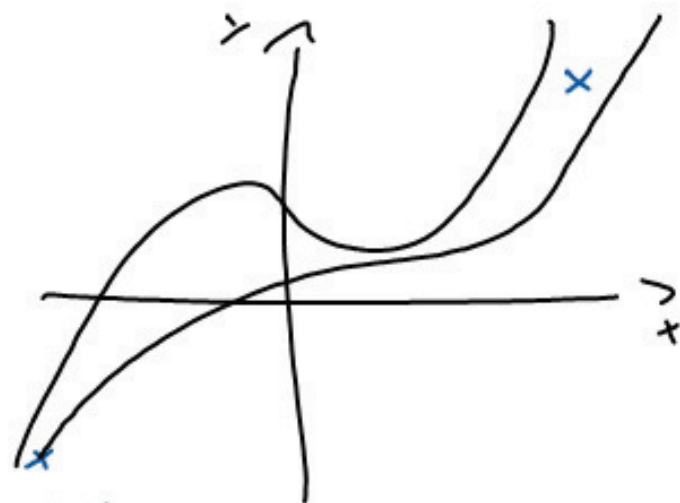
$$6x - 12$$

$$\hline -16x - 12$$

$$\hline - \quad -$$

$$(x+2)(x+3)$$

$$\llcorner = \{ \pm 2; -3 \}$$



$$x = -1$$

$$4) \quad (x^4 - x^3 - 11x^2 + 9x + 18) : (x+1) = \underline{x^3 - 2x^2 - 9x + 18}$$

$$\begin{array}{r} \underline{-(x^4 + x^3)} \\ -7x^3 - 11x^2 + 9x + 18 \\ \underline{-(-2x^3 - 2x^2)} \\ -9x^2 + 9x + 18 \\ \underline{+(-9x^2 - 9x)} \\ 18x + 18 \\ \underline{-18x + 18} \\ 0 \end{array}$$

$$L = \{-1; \pm 3; 2\}$$

$$(x^3 - 2x^2 - 9x + 18)(x-2) = x^4 - 9$$
$$\begin{array}{r} \underline{-(x^3 - 2x^2)} \\ -5x + 18 \\ \underline{-(-5x + 18)} \\ 0 \end{array}$$
$$\underbrace{(x+3)(x-3)}$$

$$\frac{\frac{2}{5} + \frac{1}{3}}{\frac{4}{5} - \frac{10}{13}} = \frac{\frac{6+20}{15}}{\frac{52-50}{65}} = \frac{26}{15} : \frac{2}{65} = \frac{13}{15} \cdot \frac{13}{2} = \frac{169}{3} = 56\frac{1}{3}$$

$$3a) 3 - \frac{2x+3y}{x+y} - \frac{(x-y)(x+y)}{(x+y)^2}$$

$$\frac{3x+3y - 2x - 3y - x + y}{x+y} = \frac{y}{x+y}$$

$$\frac{xy+y^2}{(x+y)^2} = \frac{y(x+y)}{(x+y)^2}$$

$$5) \frac{-\frac{0,5}{5} - \frac{1}{2xy}}{\frac{xy}{5} + 2 + \frac{5}{xy}} = \frac{\frac{-1xy-5}{10xy}}{\frac{(xy)^2+10xy+25}{5xy}} = -\frac{xy+5}{10xy} - \frac{5xy}{(xy+5)^2} = -\frac{1}{(xy+5) \cdot 2}$$