(2) $a^2-b^2=(a-b)(a+b)$ são opostos

b) $x^3-6x^2-4x+24.$

$x^2(x-6)+4(-x+6)=x^2\cdot(x-6)+4\cdot(-1)(x-6)$

$x^2\cdot(x-6)-4\cdot(x-6)$

$x^2\cdot(x-6)-4\cdot(x-6)$

$(x-6)\underbrace{(x^2-4)}_{DQ}=(x-6)\cdot(x^2-2^2)$

$(x-6)(x-2)(x+2)$

c) $16x^4-1.=\underbrace{(4x^2)^2-1^2}_{DQ}$

$(x^2)^2$

$\underbrace{(4x^2-1)}_{DQ}(4x^2+1)$

$(2x-1)(2x+1)(4x^2+1)$

4 fator comum e x^2 fator comum

f) $24x^4-12x^3y^2-16x^3y+8x^2y^3$

$12x^3(2x-y^2)-8x^2y(2x-y^2)$

$(2x-y^2)\cdot(12x^3-8x^2y)$

$(2x-y^2)\cdot 4x^2\cdot(3x-2y)$

opção

$4x^2(\underbrace{6x^2-3xy^2}_{\text{3 e x são fatores comuns}}\underbrace{-4xy+2y^3}_{\text{-2 e y são comuns}})$

$4x^2\cdot[3x(2x-y^2)-2y(2x-y^2)]$

$4x^2\cdot(2x-y^2)(3x-2y)$

(3)

$$E=\left(3m^2-\frac{1}{m}\right)^2=(3m^2)^2-2\cdot 3\cdot \overset{m}{\cancel{m^2}}\cdot\frac{1}{\cancel{m}}+\left(\frac{1}{m}\right)^2$$

$$E=3^2\cdot(m^2)^2-6m+\frac{1^2}{m^2}$$

$$E=\underline{\underline{9}}\cdot m^4-6m+\frac{1}{m^2}$$

$$(a+b)^2=a^2+2ab+b^2$$

$$(a-b)^2=a^2-2ab+b^2$$

$$(3m^2)^2\neq 3m^{2^2}$$

$$\underbrace{2\cdot 3}_{6}\cdot 4$$

$$6\cdot 4$$

5a

$$\frac{36a^3b^2-42a^2b^3}{6a^2b^2} = \frac{\cancel{6\cdot a^2\cdot b^2}\cdot(6a-7b)}{\cancel{6a^2b^2}} = 6a-7b$$

$$\frac{\overset{6}{\cancel{36}}\,\overset{a}{\cancel{a^3}}\,\overset{1}{\cancel{b^2}}}{\cancel{6a^2b^2}} - \frac{\overset{7}{\cancel{42}}\,\overset{1}{\cancel{a^2}}\,\overset{b}{\cancel{b^3}}}{\cancel{6a^2b^2}} = 6a-7b$$

$$\frac{a+b}{c} = \frac{a}{c}+\frac{b}{c}$$

$$\frac{c}{a+b}$$ NÃO FAZ NADA

5b

$$\underbrace{\frac{a+b+ax+bx}{ax+bx}}_{A} : \underbrace{\frac{x^2-1}{x^2-x}}_{B} = E$$

$\frac{a}{b} = \frac{c}{d} \Rightarrow ad = bc$

$\frac{a}{b} : \frac{c}{d} \Rightarrow \frac{ad}{bc}$ é verdade $\quad \frac{a}{b} : \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$

$$A = \frac{(a+b)+(ax+bx)}{ax+bx}$$

$$\frac{(a+b)}{ax+bx} + \frac{\cancel{ax+bx}^{\,1}}{\cancel{ax+bx}} = \frac{\cancel{(a+b)}^{\,1}}{x.\cancel{(a+b)}} + 1 = \frac{1}{x} + 1 = \frac{1+x}{x}$$

$$\frac{(a+b)+x(a+b)}{x.(a+b)} = \frac{\cancel{(a+b)}(1+x)}{x.\cancel{(a+b)}} = \frac{1+x}{x}$$

$$B = \frac{x^2-1}{x^2-x} = \frac{\cancel{(x-1)}^{\,1}.(x+1)}{x.\cancel{(x-1)}} = \frac{x+1}{x}$$

$$\text{Logo, } E = \frac{A}{B} = \frac{\frac{1+x}{x}}{\frac{x+1}{x}} = 1$$

$$\frac{ab\cancel{c}}{\cancel{c}} = ab$$

$$\frac{ab+c}{c}$$

$$\frac{a}{a} = 1, \; a \neq 0$$

$\frac{2}{3} : \frac{5}{4}$ Não

$$\frac{2}{3} \cdot \frac{4}{5} = \frac{8}{15}$$

c)

$$\frac{x^2+4}{x^2-4}-\frac{x}{\underbrace{2+x}_{x+2}}=\frac{(x^2+4)}{(x-2)(x+2)}-\frac{x}{x+2}=\frac{(x^2+4)\cdot 1-x(x-2)}{(x-2)(x+2)}=E$$

$$E=\frac{\overset{0}{\cancel{x}}{}^{2}+4-\cancel{x^2}+2x}{(x-2)(x+2)}=\frac{2x+4}{(x-2)(x+2)}=\frac{2\cancel{(x+2)}}{(x-2)\cancel{(x+2)}}=\frac{2}{x-2}$$

$$\frac{x^2\cdot 4}{x^2\cdot(-4)}$$

certo

$$\frac{5}{3}=\frac{2+3}{3}$$

$$\frac{2+\overset{1}{\cancel{3}}}{\cancel{3}}=3$$

erro grave!

erradíssimo

$$\to E=\frac{\overbrace{x^2-x^2}^{zero}+4+2x}{(x-2)(x+2)}=\frac{4+2x}{(x-2)(x+2)}$$

h)

$$E = \frac{a}{a^2-1} + \frac{a^2+a-1}{a^3-a^2+a-1} + \frac{a^2-a-1}{a^3+a^2+a+1} - \frac{2a^3}{a^4-1}$$

Analisar os denominadores

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

$\underbrace{a^3-a^2}+\underbrace{a-1} = a^2(a-1)+(a-1) = (a-1)(a^2+1)$

$\underbrace{a^3+a^2}+\underbrace{a+1} = a^2\cdot(a+1)+(a+1) = (a+1)\cdot(a^2+1)$

$a^4-1 = (a^2-1)(a^2+1) = (a-1)(a+1)(a^2+1)$

$$E = \frac{a}{(a-1)(a+1)} + \frac{(a^2+a-1)}{(a-1)(a^2+1)} + \frac{(a^2-a-1)}{(a+1)(a^2+1)} - \frac{2a^3}{(a-1)(a+1)(a^2+1)}$$

$$E = \frac{a\cdot(a^2+1) + (a^2+a-1)(a+1) + (a^2-a-1)(a-1) - 2a^3}{(a-1)(a+1)(a^2+1)}$$ terminar

$$\frac{1}{6} + \frac{7}{18}$$

$$\frac{1\cdot 3+7\cdot 1}{18} = \frac{10}{18}$$

$$\frac{1\cdot 18+7\cdot 6}{6\cdot 18} =$$