

UNIVERSIDAD TECNOLÓGICA DE PANAMÁ

FACULTAD DE MECÁNICA
PRÁCTICA DE MATEMÁTICA

Tema: Fracciones Algebraicas (Suma, Resta, Multiplicación y fracciones Complejas.)

● Resuelva y Simplifique:

$$1. \frac{t}{3t+2} - \frac{4}{t-1} + \frac{t^2}{t^2-1} \quad \text{R: } \frac{4t^3 - 10t^2 - 21t - 8}{(3t+2)(t^2-1)}$$

$$2. 1 - \frac{p^2}{p^2-1} \quad \text{R: } -\frac{1}{p^2-1}$$

$$3. \frac{y}{3y^2-5y-2} - \frac{2}{3y^2-7y+2} \quad \text{R: } \frac{3y^2-7y-2}{(3y-1)(y-2)(3y+1)}$$

$$4. \frac{x-2}{x^2+6x+9} - \frac{x+2}{2(x^2-9)} \quad \text{R: } \frac{1}{2} \frac{x^2-15x+6}{(x^2-9)(x+3)}$$

$$5. \frac{2x-3}{2x^2+11x-6} - \frac{3x+1}{3x^2+16x-12} + \frac{1}{3x-2} \quad \text{R: } \frac{2x^2-x+1}{(3x-2)(x+6)(2x-1)}$$

$$6. \frac{2x}{x^2-y^2} + \frac{1}{x+y} - \frac{1}{x-y} \quad \text{R: } \frac{2}{x+y}$$

$$7. \frac{x^2+x-5}{x-7} - \frac{x^2-2}{x-7} + \frac{-4x+8}{x^2-9x+14} = \quad \text{R: } 1$$

$$8. \frac{y}{y^2-y-2} - \frac{1}{y^2+5y-14} - \frac{2}{y^2+8y+7} \quad \text{R: } \frac{y+3}{(y+7)(y-2)}$$

$$9. \frac{x^2-y^2}{x+y} \cdot \frac{x^2+2xy+y^2}{y-x} \quad \text{R: } -x^2-2xy-y^2$$

$$10. \frac{x^2+2x}{3x^2-18x+24} \div \frac{x^2-x-6}{x^2-4x+4} \quad \text{R: } \frac{1}{3}x \frac{x-2}{(x-3)(x-4)}$$

$$11. \frac{(x+2)^2}{3x-2} \div \frac{9x+18}{4-9x^2} \quad \text{R: } -\frac{1}{9}(x+2)(3x+2)$$

$$12. \frac{\frac{4x^2-9}{x^2+3x-4}}{\frac{2x-3}{1-x^2}} \quad \text{R: } -(2x+3)\frac{x+1}{x+4}$$

$$13. \frac{\frac{x^2+7x+10}{x^2-2x-8}}{\frac{x^2+6x+5}{x^2-3x-4}} \quad \text{R: } 1$$

$$14. \frac{\frac{x^2-4}{x^2+2x-3}}{\frac{x^2-x-6}{x^2-9}} \quad \text{R: } \frac{x-2}{x-1}$$

$$15. \frac{y - \frac{y^2}{y-x}}{1 + \frac{x^2}{y^2-x^2}} \quad \text{R: } -\frac{x^2+xy}{y}$$

16. $\frac{\frac{s^2}{s-t} - s}{\frac{t^2}{s-t} + t}$ R: 1

17. $\frac{\frac{x}{y} - 2 + \frac{y}{x}}{\frac{x}{y} - \frac{y}{x}}$ R: $\frac{x-y}{x+y}$

18. $2 - \frac{1}{2 - \frac{2}{2 + \frac{1}{x}}}$ R: $\frac{2x+3}{2x+2}$

19. $\frac{1 + \frac{3}{x}}{x - \frac{9}{x}}$ R: $\frac{1}{x-3}$

20. $\frac{\frac{6x^2y + 7xy - 3y}{xy - x + 5y - 5}}{\frac{x^3y + 4x^2y}{xy - x + 4y - 4}}$ R: $\frac{6x^2 + 7x - 3}{x^2(x+5)}$