

• Efectuar los siguientes **productos y cocientes**, dando el resultado simplificado:

a)  $\frac{3x-1}{x^2-9} \cdot \frac{x+3}{2x}$  (Soluc:  $\frac{3x-1}{2x^2-6x}$ )

b)  $\frac{x+1}{x^2-2} \cdot \frac{x^2+2}{x-1}$  (Soluc:  $\frac{x^2-1}{x^4-4}$ )

c)  $\frac{\frac{x+1}{x+2}}{\frac{x+1}{x+3}}$  (Soluc:  $\frac{x+3}{x+2}$ )

d)  $\frac{\frac{3x+1}{x^2-4}}{\frac{x}{x^2-4x+4}}$  (Soluc:  $\frac{3x^2-5x-2}{x^2+2x}$ )

e)  $\frac{3x-1}{x^2} \cdot \frac{x+1}{x^5}$  (Soluc:  $\frac{3x^2+2x-1}{x^7}$ )

f)  $\frac{\frac{x+1}{x^2-2}}{\frac{x-1}{x^2+2}}$  (Soluc:  $\frac{x^3+x^2+2x+2}{x^3-x^2-2x+2}$ )

g)  $\left(\frac{m^2+1}{2}\right)^2 - \left(\frac{m^2-1}{2}\right)^2$  (Soluc:  $m^2$ )

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

i)  $\left(a + \frac{b}{2a}\right)^2$  (Soluc:  $\frac{4a^4 + 4a^2b + b^2}{4a^2}$ )

j)  $\frac{\frac{x^3-3ax^2+3a^2x-a^3}{x+a}}{\frac{x-a}{x+a}}$  (Soluc:  $x^2-2ax+a^2$ )

k)  $\frac{9 \frac{x+2y}{3} + 6z}{3}$  (Soluc:  $x+2y+2z$ )

l)  $\frac{\frac{x}{3}}{x - \frac{x}{3}}$  (Soluc: 1/2)

m)  $\frac{A}{B}(1-B)+A$  (Soluc:  $A/B$ )

n)  $\frac{\frac{x^3-x}{2x^2+6x}}{5x^2-5x}$  (Soluc:  $\frac{x+1}{5x}$ )

o)  $\frac{\frac{\frac{2}{a}-1}{\frac{a}{2}}}{\frac{1}{2}}$  (Soluc:  $a-2$ )

p)  $\frac{\frac{y}{1-y}}{\frac{y}{1-y}+1}$  (Soluc: y)

q)  $\frac{(n^2-n) \frac{1}{n^2}}{\frac{1}{n}-1}$  (Soluc: -1)

r)  $\frac{(x^2-y^2)^2 + 4x^2y^2}{(x^2+y^2)^2}$  (Soluc: 1)

s)  $\frac{x+2(x-2)}{(x+2)(x-2)}$  (Soluc:  $\frac{3x-4}{x^2-4}$ )